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THE HEADQUARTERS OF THE MINING INDUSTRY.

Visitors find here files of a great number of papers from the mining districts of this and other countries, and books of reference which can be consulted for information on any question in which they may be interested. They can have their letters addressed in care of "The Engineering and Mining Journal," P. O. Box 1833, New York, and will find in the headquarters every convenience for correspondence.

The sharp rise in the prices of iron and steel here could not continue very long without affecting the foreign markets also. The depression which has kept the British iron trade quiet for a year or more past seems to be passing away, and we hear this week of an active speculation, and marked, though somewhat irregular, increases in quotations. At present this movement is chiefly confined to pig iron, but it may be expected to extend to other branches of the trade. It is based, however, just now rather on expectations of better business in the future than on any new demand actually existing, and is therefore a speculative rather than an actual buying movement.

The thoroughness and system with which the German manufacturers are working to develop and increase their export trade is shown by the statement that preparations are being made to start periodicals in China and Japan, having for their object the introduction of German goods and the promotion of commercial relations in those countries. The value of such a publication in China seems somewhat doubtful, but a circulation in Japan may be of great service. The Ministry of Commerce, it is said, is taking an interest in this project, and will give its assistance in the preparation and circulation of the proposed journals.

The accident at the Osceola copper mine in Michigan, by which some thirty men were killed, seems to be one of that class against which it is difficult to take precautions. A fire in a shaft is not a common matter in a metal mine like the Osceola, and the fact that out of the force engaged in the mine at the time over one hundred escaped unhurt shows that the means of exit from the mine were open, at least so far as the greater part of the workings was concerned. The cause of the fire appears to be unknown as yet; and though an investigation will be made, it is possible that the true cause will never be ascertained. One dispatch says that the fire was purposely started, but no facts are given to warrant the assertion. The Osceola has the reputation of being a well-managed mine, and it is quite possible that the disaster will be found on examination to have been one that does not affect this character.

The break in the price of silver which has been predicted in certain quarters for some time past has not arrived, but, on the contrary, the price has been very steady, and even shows some tendency to increase under the pressure of orders from the East. The demand for shipment is reported greater than for several months, especially for China and Japan, while the usual purchases for Indian account have been well maintained. Moreover, the new supply of the metal is evidently smaller than it was last year, as production has been reduced, not only in our own country, but from other important sources. The great Broken Hill mines, in Australia, to the condition of which we have heretofore referred, will apparently send out only a limited amount for some time to come, and it is doubtful whether their production will ever again reach the point at which it was maintained for several years prior to 1894. There is every indication that the price will not fall below the present figures, and that the tendency will be rather to higher ones.

The reported advance of $4 per ton in steel rails seems to be hardly in the direction of the best policy. While it is to be admitted that there has been no increase in the prices of rails at all corresponding to the rise in other sections of the iron market, we must remember that the standard price has been kept by the makers considerably higher in proportion than those of other classes of manufactured iron and steel during the recent depression. The railroad companies are still only limited buyers, and the fact of so large an increase is almost certain to discourage orders and, perhaps, to delay many contracts which may now be pending or ready for offer. While in many instances repairs of railroads have been postponed during the period of low earnings, there are comparatively few where renewals are so imperatively necessary as to compel immediate buying. We must remember that the tracks of a very large proportion of our railroads—certainly those of all the more important lines—are now laid with steel, and that usually the life of a steel rail can be prolonged to a certain extent; that is, that even when well worn it is safer and can be relied upon to carry traffic much better than an iron rail in corresponding conditions.

Under all these circumstances it seems to us that it would have been better had the steel rail makers been content with a more moderate advance. The new price which has been set will probably be the outside limit for some time, as a higher rate now would make imports possible.

We have so often spoken in these columns of the duties of directors as trustees for their stockholders that it may seem unnecessary repetition to

refer to the subject again. We cannot, however, speak on this question too often, and attention is specially called to it in another column in a letter referring to the Merced gold mine. On this point we must repeat that one of the first of these duties which the directors or trustees owe to their stockholders is publicity. It is, or should be, above all things obligatory upon them to let the stockholders whom they represent know what the company is doing, what it owns, what it is making or losing, and as far as possible the reasons for such results. In the case of a new company in which the public is asked to invest its money this requirement is even more imperative, and there is no reasoning and no valid argument which can be adduced to the contrary. After all the public has the remedy very largely in its own hands. The safest advice to be given in all cases to investors is to let severely alone the stocks of all companies whose directors are not perfectly willing to take investors into their confidence, and to make proper statements and returns. If the public could only be induced to carry this plan into effect it would not take long to complete the desired reform. The investment of money in properties whose condition and operations are practically unknown is never safe, no matter how strong a list of names may be brought up to induce it, and the realization of this fact with the determination to act upon the conclusion would be of the greatest possible benefit both to present and to future investors of capital.

UNITED STATES MINERAL PRODUCTION AND PROSPECTS.

The general improvement in business, which we have noted in our columns from time to time, now seems to be firmly established. Production has begun to show a marked increase, not only over the year of depression, but over the prosperous years which preceded the panic of 1893, and the steady increase in prices shows that it is not outrunning the demand. Stocks of all the materials of construction had been drawn down to a low point, and renewals are absorbing the output in all directions. In addition to this, there have been in all the important trades increases in wages which have brought them in most cases well up to the ante-panic standard.

Under these circumstances it is instructive to examine our production in a year of general depression, and to see what was the actual output of our mines and quarries in such a period.

In the "Engineering and Mining Journal" for June 1st, 1895, we published a table giving the mineral production of the United States with its money values at the place of production, in 1894 and 1893. While the figures in that table were substantially correct, some few changes were made necessary by late returns; and we therefore reproduce the table here, in its latest corrected form, as it appears in "The Mineral Industry," Volume III.

MINERAL PRODUCTION OF THE UNITED STATES, 1893 AND 1894.

No.	Products.	Customary Measures.	1893. Quantity. Customary Measures.	1893. Quantity. Metric Tons.	1893. Value at Place of Production.	1894. Quantity. Customary Measures.	1894. Quantity. Metric Tons.	1894. Value at Place of Production.
	NON-METALLIC.							
	Abrasives—							
1	Corundum and emery	Short tons	1,747	1,585	$140,589	1,220	1,106	$109,500
2	Garnet	"	1,520	1,379	55,800	1,000	907	35,000
3	Grindstones	"	45,340	41,133	345,920	37,400	33,922	335,800
4	Millstones	"	155	141	2,359	297	269	4,447
5	Tripoli and infus. earth	"	1,351	1,226	25,625	1,802	1,634	36,687
6	Whetstones	"	1,903	1,726	89,550	1,735	1,574	84,450
7	Alum	"	96,000	87,093	2,880,000	72,000	65,304	2,160,000
8	Antimony ore	"	850	771	41,000	165	150	9,075
	Asbestos and Talc—							
9	Asbestos	"	120	109	6,000	250	227	3,750
10	Fibrous talc	"	36,500	33,113	357,625	39,600	35,917	396,000
11	Talc and soapstone	"	20,100	18,235	360,825	21,044	19,087	401,892
12	Asphalt	"	3,490	3,166	68,682	4,198	4,080	75,654
13	Bituminous rock	"	31,404	28,489	114,752	34,199	31,018	148,120
14	Barytes	Long tons	26,632	27,067	133,160	23,758	24,141	95,032
15	Bauxite	"	11,041	11,222	55,205	10,732	10,908	42,928
16	Borax	Pounds	9,199,000	4,173	690,925	13,140,580	5,962	919,841
17	Bromine	"	348,399	158	87,100	379,444	172	98,655
18	Cement, natural hydraulic	Bbls., 300 lbs.	7,445,950	1,013,238	5,010,958	7,895,259	1,074,179	4,397,407
19	Cement, Portland	"	673,949	91,715	1,052,173	738,196	100,352	1,080,644
20	Clay, refractory	Short tons	3,214,989	2,916,591	4,822,483	3,375,788	3,061,794	4,050,885
21	Clay, kaolin	"	30,183	27,382	205,667	24,552	22,246	185,169
22	Coal, anthracite	"	a47,355,387	42,960,116	74,605,885	a52,010,433	47,183,345	80,879,404
23	Coal, bituminous	"	a128,826,364	116,869,397	123,899,415	a117,950,348	106,953,311	103,842,467
24	Coke	"	8,939,961	8,110,345	14,706,544	8,495,295	7,706,846	12,654,558
25	Cobalt oxide	Pounds	3,894	*	5,452	6,550	*	8,843
26	Copperas	Short tons	17,862	16,204	134,520	14,897	13,511	104,160
27	Copper sulphate	Pounds	54,000,000	24,492	1,822,500	e60,000,000	27,215	2,016,000
28	Chrome ore	Long tons	1,629	1,656	16,000	2,653	2,697	35,125
29	Feldspar	"	17,000	17,274	85,000	23,280	23,655	116,400
30	Fluorspar	Short tons	9,700	8,800	63,070	9,000	8,165	64,000
31	Graphite	Pounds	882,912	400	39,731	770,846	349	34,689
32	Graphite, amorphous	Short tons	1,691	1,534	8,996	165	150	1,252
33	Gypsum	"	330,231	299,582	927,615	287,517	260,834	849,925
34	Lime	Bbls., 200 lbs.	e60,000,000	5,443,164	30,000,000	e56,750,000	5,148,326	28,375,000
35	Magnesite	Short tons	1,143	1,037	8,000	1,370	1,243	4,864
36	Manganese ore	Long tons	9,150	9,297	60,000	11,735	11,924	74,899
37	Mica, ground	Pounds	679,000	308	29,522	829,500	377	35,957
38	Mica, sheet	"	6,500	3	5,478	9,900	4	11,103
39	Monazite	"	120,000	59	7,600	750,000	340	45,000
40	Natural gas	.....	.....	.....	14,000,000	.....	.....	11,000,000
41	Paints, mineral	Short tons	44,709	40,559	726,160	38,801	35,200	662,262
42	Paints, vermilion	"	37	34	40,000	41	37	45,600
43	Paints, white lead	"	88,500	80,286	9,469,500	87,242	78,155	8,445,174
44	Paints, zinc oxide	"	25,000	22,679	1,875,000	22,814	20,697	1,711,275
45	Petroleum (crude)	Bbls., 42 gals.	50,349,228	7,043,857	32,223,505	48,527,336	6,788,974	40,762,962
46	Phosphate rock	Long tons	981,340	997,140	3,434,690	952,155	967,485	2,856,455
47	Marls	"	300,000	203,814	540,000	225,000	228,622	607,500
48	Precious stones	.....	.....	.....	200,000	.....	.....	250,000
49	Pyrites	Long tons	95,000	96,529	285,000	107,492	109,192	466,466
50	Salt, evaporated	Bbls., 280 lbs.	9,703,419	1,232,392	4,945,583	9,161,053	1,163,508	4,608,275
51	Salt, rock	"	1,935,642	245,838	678,064	2,341,922	297,438	788,687
52	Silica, sand and quartz	Long tons	300,000	304,814	330,824	315,531	320,610	347,951
53	Slate, roofing	Squares	803,887	237,014	2,956,895	693,944	204,656	2,551,259
54	Slate, other manufactures	Square feet	4,138,920	.....	475,681	5,099,791	.....	499,578
55	Soda, natural	Short tons	2,500	2,268	12,500	.....	.....	.....
56	Soda, natural sulphate	"	90	82	450	.....	.....	.....
57	Stone, limestone (flux)	Long tons	3,750,000	3,810,375	2,250,000	3,544,398	3,601,458	2,126,636
58	Stone, marble	Cubic feet	5,639,681	429,399	2,087,758	5,681,766	433,093	2,177,280
59	Stone, onyx	"	2,175	166	28,750	1,450	110	29,000
60	Other building stones	.....	.....	.....	e38,000,000	.....	.....	e30,000,000
	Total non-metals	.....	.....	.....	377,517,086	.....	.....	353,760,877
	METALS.							
61	Aluminum	Pounds	312,000	142	202,800	817,600	371	490,560
62	Antimony	Short tons	350	318	63,000	230	205	39,200
63	Copper	Pounds	327,255,788	148,441	35,179,997	353,504,314	160,392	33,540,489
64	Gold	Troy ounces	1,739,323	*54,093	35,955,000	1,923,619	*59,824	39,764,708
65	Iron, pig	Long tons	7,043,344	7,156,782	93,888,309	6,657,388	6,764,572	71,966,364
66	Lead, value at New York	Short tons	166,678	152,080	12,434,178	160,867	145,906	10,585,048
67	Nickel, fine	Pounds	25,893	*11,745	12,429	.....	.....	.....
68	Quicksilver	Flasks, 76½ lbs	30,164	1,046	1,108,527	30,440	1,056	1,095,840
69	Silver, commercial value	Troy ounces	60,500,000	*1,881,731	47,311,000	49,846,875	*1,550,387	31,403,531
70	Zinc spelter	Short tons	76,255	69,178	6,214,782	74,004	67,135	5,209,882
	Total metals	.....	.....	.....	232,370,022	.....	.....	194,095,622
	Est. products unspecified	.....	.....	.....	6,000,000	.....	.....	5,500,000
	Grand total	.....	.....	.....	615,847,108	.....	.....	553,356,499

(a) Bituminous coal includes brown coal and lignite. The anthracite production is the total for Pennsylvania, Arkansas and Colorado. (e) Estimated. * Kilograms.

While we cannot now comment on these figures in detail, a comparison of the two years given in its columns will show that the actual falling off in mineral production, as shown in quantities, was much less than was generally supposed. Indeed, in some important branches the changes shown are so slight as to justify a repetition of the opinion that a year of bad trade in this country is manifested rather by the absence of normal growth than by any actual decrease in output. That is, that there was little or no actual reduction in quantities produced, but production simply stood still and did not gain in proportion to the growth of population, as it should do in a normal year.

The real effect of the panic year is shown, after all, in the figures of value rather than in those of production. The large decrease in the total values was due to the prices which ruled throughout the year, and which were in many cases the lowest on record. This was especially the case in the large and most important items of iron and coal; but in other and very considerable items the case was similar.

Perhaps the great importance of the mineral industry of the country needs not be referred to, beyond the mere presentation of the figures. An industry which, in a year of extreme depression and lowest prices, adds over $550,000,000 to the material wealth of the Nation has claims to recognition which cannot be neglected.

There is no longer any doubt that when the production for 1895 comes to be summed up the conditions shown will be entirely reversed, and that the gains in production and values will be as marked as the losses shown by its predecessor.

NEW PUBLICATIONS.

THE FINANCIAL, STATISTICAL AND GENERAL HISTORY OF THE GOLD AND OTHER COMPANIES OF THE WITWATERSRAND, SOUTH AFRICA. By Charles Sydney Goldmann. Johannesburg, S. A. R.; Argus Printing and Publishing Company, Limited, and London, England; Effingham, Wilson & Co. Pages 372, with maps.

The extent to which the gold mining industry of the Transvaal has grown within a few years is strikingly illustrated by the fact that nearly 400 pages is needed to give a list of the mining companies, accompanied by a brief account of each. It is, we believe, the first record of the kind which pretends to approach completeness, and is for that reason valuable to any one interested in mining in the Transvaal. The companies have sprung up so rapidly and there have been so many changes in the way of consolidation, etc., that it has been almost impossible to follow the changes, and a work which brings them up to a certain date, and, as it were, portrays and fixes them for that date, is exceedingly useful. The drawback, of course, is that changes are continually occurring, and this can only be provided for by new editions or by supplemental issues. In one or other form we hope to see the work continued.

NEW SOUTH WALES: ANNUAL REPORT OF THE DEPARTMENT OF MINES AND AGRICULTURE FOR THE YEAR 1894. MINES AND MINING. Harrie Wood, Under Secretary for Mines and Agriculture. Sydney, N. S. W.: Government Printer. Pages 160, with maps and diagrams.

This report shows that the Mines Department was not idle during 1894. While the mineral output of the colony was greater in some directions and less in others, the number of applications for prospecting licenses and for mining authorizations largely increased and there were an unusual number of requests for examination of new districts. The Department also completed a number of local geological and mining maps, while the analytical division reports a very large number of assays, the greater part of which were for gold and silver. The work has been well brought up to date, and but few applications remain to be acted upon at the close of the year.

Some of the figures and conclusions given in the report are summed up elsewhere. The notable features of the year were a very large increase in the production of gold, and a decrease in the production and values of silver. In tin and copper but little change was shown. The output of gold last year was 324,787 oz., and was very much larger than any reported for a number of years. The total value of gold produced in New South Wales up to the close of 1894 is given by the Department at £1,464,744.

Besides the report of the secretary the reports of the mine inspectors of the different districts are given. The government geologist, Mr. Edward F. Pittman, reports the progress of the Geological Survey, in addition to which there are special reports on the work done in a number of districts, most of them being accompanied by maps.

POOR'S MANUAL OF THE RAILROADS OF THE UNITED STATES. TWENTY-EIGHTH ANNUAL NUMBER, 1895. New York; H. V. & H. W. Poor. Pages 1,412. Price $7.50.

"Poor's Manual" has grown to be so well known and so indispensable to bankers and investors that its annual appearance really calls for little more than the announcement. Its reputation is well established and it has practically passed the stage of criticism or discussion. We can safely say that there is nothing which can take its place, and that the care with which it is compiled has been established by many years of use. It is the standard, and, indeed, the only authority to which reference can be made.

The volume is enlarged somewhat this year by an increase in the amount of space given to street railroads. This is an excellent feature and is a recognition of the importance which electric and other lines of tramway are assuming in the transportation system of the country. The aggregate amount of capital already invested in these undertakings is very large: and many good judges think that the electric tramway—in which we include short connecting and suburban lines as well as city street roads—will be in the immediate future one of the chief outlets for the surplus capital to be invested, and also that if properly handled they will be of the greatest service to the established steam railroads as feeders instead of rivaling them as many believe.

The statistics in the introduction to the "Manual" show that at the close of 1894 there were in the United States 179,280 miles of railroads, a growth of 1,821 miles during the year, while the investment in these lines amounted to the enormous sum of $11,565,600,207. On these railroads during 1894 the total train mileage amounted to 818,382,718 miles; the number of passengers carried was 583,248,007, and the freight moved was 675,129,747 tons. The total revenue of the railroads was $1,080,305,015, and their net revenue was $419,019,719. These figures will give an idea of the importance and influence of the railroad interest in this country as nothing else will.

There might be supplemented, if space permitted, many other interesting statistics from the "Manual." The introduction deserves careful study.

PROCEEDINGS OF THE INTERNATIONAL ELECTRICAL CONGRESS HELD IN THE CITY OF CHICAGO, AUGUST 21-25, 1895. New York; Published by the American Institute of Electrical Engineers. Pages 488; illustrated. Price $3.00.

This Congress, the proceedings of which are given in the handsome volume before us, was one of a series held in connection with the Columbian Exposition. It differed from most of the others held about the same time in having an official and legislative composition to a certain extent. The Congress was made up by two chambers or bodies, one composed of delegates nominated by different governments, to which was added the special duty of deciding on electrical units, their names and standards, while the other was composed of electricians generally, whose time was devoted, as in the engineering and other congresses, to the discussion of scientific and practical points. The necessity of the official part of the Congress must be apparent to all those who have to do with electrical literature and discussions, and who know the uncertainty which has existed with regard to the units of electrical measurement and even as to their names. This was largely due, of course, to the rapid growth of electrical science, and to the fact that observers and electricians working in different countries had used or invented for themselves different systems of nomenclature because they had no earlier standards to go by.

The proceedings of the delegate body, of course, were limited to the special purpose for which they were appointed, but those of the general Congress took a very wide range, as will be seen by the list of papers read and by the numerous discussions called out by their reading. This list covers almost every variety, so far as yet known of the manifestation and applications of electrical power, some of the papers being profoundly scientific and others more practical in their nature. The discussions, which were, unfortunately, in many cases cut short by the limitations of time imposed on the Congress, are for the most part extremely interesting, and not only show a keen appreciation of the facts presented in the various monographs, but a desire to contribute the latest accepted investigations and the best records of experience to the general sum of knowledge. In a science so recent in its growth and still comparatively so little developed, there naturally would be great varieties of opinion, and these were fully shown in the discussions of Congress. From the character of those who were present and represented, it is safe to say that these pages present the latest developments and the results of the latest investigations in electrical science up to its date, and they certainly furnish some very interesting reading.

BOOKS RECEIVED.

In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

Examination of Water for Sanitary and Technical Purposes. By Henry Leffmann. Philadelphia, Pa.; P. Blakiston, Son & Co. Pages 154; illustrated. Price, $1.25.

History of Monetary Systems. By Alexander Del Mar. London, England; Effingham Wilson. Pages 511.

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CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.
Letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents

What is the Value of the Merced Gold Mine?—The Duties of Directors.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: I note with much pleasure your remarks on the Merced Gold Mine. I am not a mining expert and have no knowledge of the actual value of the property, but I do know that stock has been sold at a price which would bring the cost of the mine to more than $13,000,000, and yet, as you say, no expert reports are made public that would enable investors to form an opinion of the actual value of the property.

You have many times written forcibly on "the duties of directors" to furnish their stockholders information concerning their property, and you have pointed out that directors are simply "trustees for the stockholders" with all the responsibilities of other trustees. These remarks you applied very justly to some of Boston's most esteemed citizens. You have now in this example of inflation, if not worse, and in the refusal, which you cite, of the officers of the company to give you any information concerning the Merced Mine which they and their friends are floating on a too confiding public, a fine text for a new sermon on the duties and responsibilities of directors.

Suppose the purchasers of Merced stock who buy "on faith in the state-

ments the officers of the company allow to circulate uncontradicted" and when these officers decline to give the information they have or which it is their duty as trustees to have concerning the property, suppose such purchasers should find that they had lost their money just as effectually as if they had purchased deeds to city property on the false though uncontradicted representations of his brokers that the vendor owned valuable property which would bring in immense rentals, when, in fact, he had no property of value but only a worthless shanty in a valueless locality. Would such a purchaser of Merced stock "have a case" against the real vendor, who concealed the facts, more particularly if such vendor were a "trustee" of the property, and declined to give information concerning it to his wards? I do not know whether you are authorities on this legal conundrum, and perhaps I should not ask it, but the subject is one that it may be useful to propound for the benefit "of whom it may concern." Trustees certainly have responsibilities and it is desirable to have them defined in such cases as this appears to be. QUIEN SABE.

BOSTON, Sept. 9, 1895.

An Idaho Silver-Gold Camp.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: On a recent professional trip in Idaho, I noted a marked revival of interest in the old silver-gold camp of Silver City, Owyhee County, Idaho, eight miles from the famous De Lamar Mine, and 50 miles south of Nampa, on the Oregon Short Line branch of the Union Pacific Railroad. More than 80 new buildings have been erected at Silver City this season, and several of the older mines on War Eagle and Florida mountains have resumed operations. The bustling indications of a mining camp born again are everywhere manifest, and a cheerful tone pervades the community. The saloons hang out in conspicuous figures "16 : 1—the true basis for all healthy industry"—inviting the favorite silver argument with appropriate refreshments. But the large attendance is chiefly concerned with the latter.

Besides the great De Lamar, the principal active mines are the Trade Dollar, the Black Jack (both owned by Pittsburg companies) and the Morning Star. These concerns, together with the famous De Lamar, distribute monthly for wages and supplies in the neighborhood of $75,000.

From one-fifth to two-thirds of the value of these ores is gold. They are mined and milled at a relatively heavy cost, ranging from $15 to $20 per ton, owing to the high price of fuel (wood) and all other supplies. Wood is becoming scarcer every year. It is now brought in from the foothills from 8 to 15 miles distant and laid down at the mines for from $8 to $9 per cord. The present rate of consumption kept up for about two years longer will be apt to advance the price materially unless, in the meantime, a railroad is extended into the district, which project is now being seriously considered. The fuel bill of the De Lamar alone amounts to $50,000 per year, while at the smaller properties it runs from $10,000 to $15,000. During the summer months it is brought in under contract for the entire year, and as a precautionary measure some mines carry a two years' supply, thus locking up large sums of money for this account alone.

The management of the De Lamar Company, after some preliminary investigations of the Pelatan-Clereci process, which is an electrolytic-amalgamation modification of the cyanide process, has decided to put in a plant for certain grades of their ore. The results of this pioneer work, under the efficient management of Capt. J. W. Plummer, will be of great interest to the gold mining community generally.

The Florida Mountain mines are now attracting especial notice because the veins have been demonstrated to pass practically undisturbed from the porphyry into the underlying granite, in which formation they have, if anything, become more than ever productive. This lode persistence and continuity of ore bodies, or chimneys, have been proven to a total depth of 1,200 ft. from the top of the mountain, of which about one-half is in coarse granite. In the immediate vicinity of their intersection with the plane of contact, the veins on the northern slope of Florida Mountain are temporarily impoverished for some mysterious reason: Within a short distance, however, they are apt to continue as rich, if not richer, than above in the porphyry formation. On the strike of the veins the continuity is equally satisfactory, having been proven in one instance, in a tunnel drift, 3,250 ft. in length, where the veins and walls are clearly defined for the entire distance, not only in the ore bearing ground, but also throughout the intervening zones of practically barren vein.

NEW YORK, September 9th, 1895. FREDERICK G. CORNING.

PRODUCTION OF PURE IRON BY A NEW PROCESS.*

By R. A. Hadfield.

In this paper the author said that he had heated 3 lbs. of iron oxalate in a basic-lined crucible, adding 9 oz. of aluminum and lime and fluorspar as fluxes. The metal obtained had 0·12 carbon, 3·59 and 3·55 silicon, about 56·70 iron and about 36·75 aluminum. The material was evidently an alloy of iron and aluminum, and, notwithstanding the low carbon, was hard enough to scratch glass, an operation performed with it by the author at the meeting. It could not be filed and was not attracted by the magnet, nor was the needle of the compass deflected by it. The object was to produce pure iron, and the experiment was, therefore, a failure. Some others of a somewhat similar nature were then made, still without success. Some specially prepared ferrous oxide was then tried, and a small ingot containing 97·50% of iron and only 0·3% of carbon was obtained. The remainder was practically silicon and copper. The specific gravity was 7·75. The specific gravity of Professor Arnold's sample of iron of 99.87% purity was 7·85. Since the paper was written Mr. Hadfield has obtained a result in which the iron was 99·75% of the whole. The copper and silicon probably came from the ferrous oxide and the crucible respectively. Probably the presence of comparatively large percentages of silicon and copper could be avoided with a little more attention to this point, but Mr. Hadfield had attained his point of getting iron direct from its oxide with carbon practically absent in a way not attempted before. He is sanguine that with an oxide free from impurities pure iron could be obtained. Commercial utility is, of course, quite absent, as the cost is about 37c. per pound. If, however, aluminum could be produced at about 25c. per pound, as Professor Roberts-Austin anticipated it might, by water power, pure iron obtained in this way might be useful for electrical purposes.

In the discussion on this paper Sir Frederick Abel spoke as to the great interest of the experiments described. He said that Dr. Mattheson and he had been appointed a committee by the British Association, and their first effort had been to obtain pure iron. They did obtain a sample almost pure by producing an iron sponge which was subjected to great pressure in steel dies. This contained a mere trace of sulphur. There were many instances in which a pure iron would be useful. In regard to Mr. Hadfield's suggestion, it would be interesting to state that Professor Dewar was investigating the electrical conductivity of pure metals, and how it was affected by temperature.

Mr. Snelus said that as it was not safe to draw conclusions as to the behavior of metals when containing any alloy, it would be of the greatest value to have available a pure iron. In regard to the alloy of iron and aluminum which the author had produced, and which was so exceedingly hard, he thought that it might show the way to getting a metallic substance which would be useful in many ways, and he suggested diamond boring as one. If the author could obtain a material that was hard enough to scratch glass from two such soft metals as iron and aluminum, there was reason to hope that important results might be gained by the experiment.

*Abstract of paper read before the British Iron and Steel Association.

MINERAL PRODUCTION OF NEW SOUTH WALES.

The annual report of the Department of Mines and Agriculture of New South Wales, recently issued, gives the total value of the mineral production of the colony in 1894 at $5,056,136. This is a decrease of $382,395 as compared with the value estimated for 1893.

The accompanying table shows the minerals produced, with their estimated values, in 1893 and 1894:

MINERAL PRODUCTION OF NEW SOUTH WALES.

		1893.		1894.	
		Quantity.	Value.	Quantity.	Value.
Gold	oz.	179,288	£651,986	324,787	£1,156,717
Coal	tons	3,278,328	1,171,722	3,672, 76	1,155,573
Shale	"	55,660	101.221	21 171	31,781
Copper and regulus	"	2,067	58,426	2.137	73.481
Tin and ore	"	2 785	229,743	2,8 4	187,197
Silver	oz.	531,972	72.131	846,8 2	94,156
Silver-lead and ore	tons	214,260	2,953,589	180,327	2,195,339
Iron	"	2,91	14.786	2,368	17,170
Antimony and ore	"	1,774	25 092	1,250	18,744
Oxide of iron	"	1,260	1,5 6	433	670
Lead (pig)	"	126	4,205	31	260
Limestone (flux)	"	130,6 5	111.41	89,99	69,289
Opal	lbs.	449	12,315	198	5,684
Manganese	tons	.....	.....	11	44
Cobalt	"	26	305	3	10
Coke	"	17.858	20.233	34.458	33.269
Alunite	"	821	3,2 4	862	3,448
Fireclay	"	21	46	24	60
Marble	pkg.	.....	.....	8	80
Stone (building)	No.	850	855	.....	.....
Stone (ballast)	tons	13?	166	.....	.....
Grindstones	No.	2	3	.....	.....
Chrome ore	tons	.....	.....	3.034	12,336
Sundry minerals	"	67	557	.....	892
Total values		.....	£5,138,532	.....	£5,056 136

It will be observed that there were many fluctuations in production. The output of silver-lead ores shows a considerable decrease in quantity and a still larger one in value, the former being due to the difficulties encountered at the Broken Hill mines, and the latter chiefly to the lower prices of silver and lead during the year. The production of limestone for flux is in large part dependent upon the demand at the Broken Hill furnaces, and naturally it showed a considerable decrease. The copper of New South Wales is also chiefly obtained from the Broken Hill ores.

The iron manufactures reported consisted wholly of castings, etc., made from scrap and imported material, as no iron ores are mined in the Colony with the exception of a small amount found at Broken Hill, which is used with the other ores of that mine as flux and is not smelted as iron ore. During the year a number of samples of iron ores were obtained from different deposits, and were examined by the Mines Department, some of them assaying very favorably, but no attempt has yet been made to work any of these deposits on a commercial scale.

The production of shale shows a heavy falling off, that of 1894 being less than 40% of the 1893 output. This is partly accounted for by the large decrease in the value of the output, which was in 1894 about $7.25 per ton, against about $9 in 1893.

The production of coal shows a large increase in quantity, though there was a slight decrease in value owing to the fall in price. The average price at the mines last year was about $1.50 per ton, the lowest for a number of years. The number of collieries at work at the close of the year was 95, or two less than at the end of 1893. During the year there were 7 fatal and 40 non-fatal accidents in the coal mines, showing a considerable decrease from the previous year. The increased demand for coal was due in large part to the greater quantity exported, while the diminution in price was the result partly of the hard times in Australia and partly of the competition of Japanese coal in foreign ports. The manufacture of coke showed a large increase, the output in 1894 being nearly double that of 1893, and it is stated that the Australian coke is beginning to replace the imported product in the Australian metallurgical works.

In the minor mineral products there is little change to be noted.

A Hungarian Electric Pumping Plant.—Two electric pumping engine are being put down at the Kubeck Colliery of the Austro-Hungarian State Railway Company at Anina, in Hungary, one at a depth of 984 ft., and one at 1,968 ft. Each pump will be capable of raising 600 litres per minute a height of 984 ft. The generating plant for each pump will comprise a 80 H. P. engine and a dynamo of 55,000 watts capacity.

A CENTRAL STATION IN MINING WORK.

Written for the Engineering and Mining Journal by Timothy W. Sprague.

The establishment of a central station from which to distribute electrical energy to two or more adjoining mines, has long been considered an arrangement sure to show economy over the operation of several smaller stations, and thus to bring the advantages of electric power within the means of operators who could pay a fair rental for current but who could not readily afford the investment required for the installation of a complete independent plant. Concentration of steam plant under one roof means more economical operation in every way, besides giving a chance to select a site better suited to its purpose than could be found for several smaller plants. The first practical example of this plan on a large scale in coal mining has recently been put in operation at Scott Haven, Pa. The plant is owned by the Youghiogheny River Coal Company, which also owns all the mines supplied: but although these are all under one management, they are more widely separated in location than would be the case in many coal fields where mines of separate management could be as readily supplied from a central plant. The installation is interesting also on account of the varied uses to which the electric current is put.

The accompanying map will show the extent of the workings supplied from the main station at Scott Haven. The power house is located on the east side of the Youghiogheny River in the town of Scott Haven. From it all circuits for No. 1 mine, including the haulage, coal-cutting, pumping, and ventilating wires are run on poles direct to the mine-mouth and fan. The No. 4, Southwest and Pacific mines are all on the west side of the river, and the power for them is carried across in submarine cables of special manufacture. The apparatus at present in use and the distances of transmission are as follows:

At No. 1 mine, as shown on the map, at a distance of approximately 900 ft. from the power-house is a Capell exhaust fan, 8 ft. by 3 ft. 6 in., running at a normal speed of 208 revolutions per minute. It is belted from a 25 H. P. multipolar motor running at 650 revolutions. It was feared that this motor might not be able to take care of this load, but it is doing its work satisfactorily, and the fan, which is an English type, is furnishing more than the required air for ventilation, running at 120 revolutions less than its normal speed. The return from the fan is grounded with the haulage circuit.

The coal-cutting is confined at present to No. 1 mine, where at a distance of from 7,000 to 9,000 ft. from the power-house are five Jeffrey chain type coal under-cutters. The field of their operations is shown on the map. The

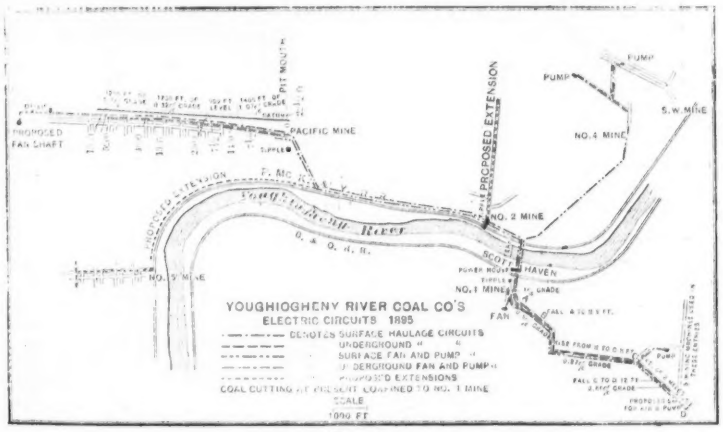


FIG. 1.

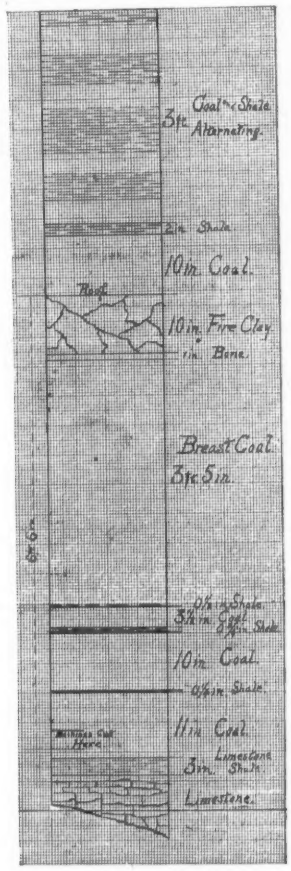


FIG. 2.—COAL SEAM IN NO. 1 MINE, YOUGHIOGHENY RIVER COAL COMPANY.

machines are of the latest type, operated by motors wound for 500 volts, and thoroughly protected from mechanical injury. The cut made is 5 ft. 9 in. under and 38 in. wide. The seam as shown by the cross-section averages about 5½ ft., and the cut is made in the lower part very close to the underlying limestone shale. The machines are 10½ ft. long and are intended to undercut, under the existing conditions, about 100 tons of screened lump coal each 24 hours, the rooms being 21 ft. wide. The current for coal-cutting is carried from the power-house to the center of the coal-cutting field by two No. 000 Simplex insulated wires, with the same capacity insulated return wires, making a complete metallic circuit, entirely independent of and separate from the other circuits. The machines were installed and the wiring construction for them put in by the Jeffrey Manufacturing Company.

Near the center of the machine work, is the present location of a portable mine pump. This is a Knowles 6½x8 in. triplex pump driven by a multipolar motor of General Electric manufacture, the whole making a very useful piece of apparatus, which has already been illustrated in these columns * It has a capacity of 150 gals. per min. and is intended for rather low lifts. The pump, gearing, motor and rheostat are mounted on an iron truck made to fit the track gage and the outfit is readily moveable from place to place. The pump is run on the grounded circuit with the locomotive.

The remaining application of power in No. 1 mine is for haulage. A 2,500 lb. drawbar pull locomotive of General Electric manufacture runs from the tipple to a point 6,000 ft. approximately from the bank mouth. The grades along this haul vary from 1% against loads to 0½% in their favor. The heaviest grade against the loads is near the pit mouth and is short. This locomotive, as well as the others installed, is wound for a speed of 8 miles per hour, and is 43½-in. gage. Wherever the locomotives run, 30-lb. rails have been laid, and the track is in excellent condition. The regular trolley construction is used, the trolley being No. 0 copper, held by mining insulators and clamping ears. A No. 00 weatherproof wire runs from the power-house to the pit mouth of No. 1 mine, where it connects with the trolley, and runs in parallel with it 3,000 ft. inside as a feeder. A No. 00 bare wire taps the rails at the bank mouth, carrying the return to the power-house.

Pumping is the only application of power made at present in No. 4 and Southwest mines. These mines are supplied with current through a No. 2 cable which branches from the other cables just across the river from the power-house, and is carried on poles the remainder of the way. The pumps are of the same type as that in No. 1 Mine, and are of 10 and 7½ H. P. capacity respectively. They are operated on a grounded circuit, the rail return being tapped by aerial wires at the bank mouth for the return to the power-house. The distances from the power-house to the pumps are a little over 8,000 ft. each.

In the Pacific Mine there are installed a 2,500-lb. drawbar pull locomotive, and a 6½ × 8 in. portable pump with a 7½ H. P. multipolar motor; it is proposed soon to add a 30 H. P. motor for ventilating purposes. The bank mouth at Pacific is over 9,000 ft. from the power-house, and the locomotive haul extends over 5,000 ft. underground. The pump is located nearly 2,000 ft. from the end of the haulage line, and it is proposed to put the fan about 1,000 ft. beyond the pump. Two No. 00 bare wires carry current for the haulage circuit, and a No. 0000 wire, also bare, makes a metallic circuit from the submarine cable to the pump. This circuit is grounded, as are the other pump circuits, only at this point in the return. The No. 00 feeders for the locomotive are run inside in parallel with the trolley for 1,000 ft., and one of them continues on 2,000 ft. further. The bonding wires are everywhere No. 0, bare copper, tinned. The grades in the Pacific haul are shown on the map. In the beginning of the haul there is a 0½% grade in favor of the loads for 1,200 ft., then follows 1,700 ft. of a less grade; then 900 ft. of level track. The last 1,400 ft. of the haul has a grade slightly over 1% against the loads.

No. 5 Mine bank-mouth is 13,800 ft. from the power-house and the points inside where it is proposed to install apparatus will bring the total distance of transmission up to over three miles.

The novelty of submarine transmission for mining work makes the cables used of interest. They are specially insulated and armored cables made by the General Electric Company. The returns from all the circuits crossing the river are bunched and carried across in one cable. As already noted the pumping and fan circuits are metallic from the end of the cable to the motors, so that if at any time it seems advisable to make them entirely independent of the grounded cable return, it will be necessary simply, to change the connections on the west side of the river and run independent return cables across to the power-house. The common return now in use is made up of 37 strands of No. 10 wire, giving it a carrying capacity of 388,000 circular mils. Around this wire is first a covering of pure rubber, next a layer of lead, then a covering of tar and asphaltum, bound with iron armor wires. Outside of these is a second covering of tar and asphaltum, and iron armor completes the protection. A similar cable of the capacity of a No. 0000 wire is the positive lead for the haulage line of the Pacific Mine, and a duplicate forms the positive for the fan and pump circuit. The positive for No 4 and Southwest Mines is a similar cable of the capacity of a No 2 wire. A cable house has been built on each bank of the river where the cables cross and between these houses the cables are buried. The problem of handling these extremely heavy cables and laying them across stream was but one of many unusual conditions which were successfully met by Mr. J. N. Bulkley, the consulting engineer who had supervision of the entire installation.

The Youghiogheny Company has made use of a portion of a building

* "Engineering and Mining Journal" for March 30th, 1895, page 297.

which was formerly a bonded warehouse, and which now makes an excellent power-house, while also containing a store, offices, etc. This building is 74 ft. wide, and the boiler-house, which is an addition to the original building, occupies the entire width, and is 33 ft. in its other dimension. It contains three 66 in. × 18 ft. tubular boilers made by the Union Iron Works of Erie, Pa., each containing 58 tubes 4 in. in diameter. They are set with half-arch fronts and brick walls. Each boiler is independent, and provided with its own 60 ft. stack, 30 in. in diameter. Water supply is furnished from a well 130 ft. deep, from which it is raised by a Downie deep-well pump. What is not needed for immediate use is pumped into storage tanks. The boilers are fed by a 10 × 6 × 10 in. Buffalo pump and three Metropolitan No. 10 injectors. A Hardwick feed-water heater serves for all the boilers. Owing to the quality of the water, some soda ash is dissolved in the feed-water, this being accomplished in a barrel sunk beneath the floor and so piped that the injector suctions can be connected to it, and in this way the soda ash solution fed, from time to time as required. Coal is delivered at the boilers from a chute, without any expense of handling.

Separated from the boiler-house by a brick wall is the engine-room, which is 74 ft. long by about 50 ft. wide. It contains three McEwen automatic engines, each 15 in. × 16 in., with 72 in. fly wheels, running at 240 revolutions. They carry from 80 to 90 lbs. steam pressure and are each belted to a multipolar generator of 100 kilowatts capacity. Fourteen-inch double leather belts are used, the distance from center to center being 24 ft. 6 in. The generators are General Electric type, wound for 500 volts and overcompounded for 10% loss on the line. They run at 650 revolutions and have a normal output of 182 amperes. Both the engines and generators are set on very substantial brick foundations, as there is a cellar beneath the engine-room floor: the foundations go down to the solid bottom, making them nearly 15 ft. deep. Those for the engines are 10 ft. × 16 ft. at the base, the brick being laid on 12 in. of concrete. The generator foundations are also underlaid with concrete, and are 12 ft. × 12 ft. at the base, tapering to the top. From the generators the current is carried to the switchboard on heavily insulated cables laid on porcelain insulators under the floor.

The switchboard is a skeleton panel oak board, and is well arranged to accomplish the rather complicated work it has to do. On the generator board are the three machine circuit breakers, General Electric type; below them three Weston ammeters; below these three main double-pole, double-throw switches, and at the bottom, the three field rheostats. The voltmeter, Weston round pattern, is carried on a swinging bracket at the side and top. Two sets of 'bus bars are run on the back of the board, one for the metallic and one for the grounded circuits. The arrangement of switches allows either of the machines to be run on either of these circuits, and by means of equalizer connections, any two or all three of the machines may be run in multiple on either grounded or metallic circuit work. This arrangement permits the most economical running of the station, as the work of the mines varies, and also insures the plant against any serious shut down. The feeder panel carries individual circuit breakers for the No. 1 haulage circuit, for the Pacific haulage circuit, and for the No. 1 coal cutting circuit. Below these are double-pole switches controlling the two pump circuits the fan circuit and the coal cutters, three of them protected by fuses. Below the distribution switches is a large double-pole switch by which the metallic and grounded 'bus bars may be thrown in multiple. As already explained, the coal-cutting is the only circuit which is at present metallic, the other switches and circuit breakers being connected to the grounded bars. Lightning arrestors placed under the floor protect the generators. All the switchboard connections are made with No. 00 hard drawn bare copper wire.

This plant was started early in July, and like all new plants, is not yet working up to its capacity, but the coal cutters are doing satisfactory work, which is also true of the locomotives. By the latter 18 mules and several drivers have been displaced. The four pumps with three men to look after them are accomplishing what it was formerly difficult to do with ten men, four mules, two steam boilers and two steam pumps.

A 7½ H. P. motor is being installed in the new steel tipple at No. 1 mine, where it operates revolving screens, and also runs an emery wheel for sharpening bits, etc. A small iron building has been erected near the tipple, which serves for a machine shop and locomotive house, with pit, etc.

This plant is not far from Pittsburg, and is also near the Essen* plant at Hazletine; and these two plants show the development of electricity in mining very satisfactorily.

Mr. M. H. Taylor, of Erie, Pa., is president of the Youghiogheny River Coal Company: W. S Gresley, general manager and consulting engineer; J. F. Hoseck, superintendent; J. S. Van Kirk, engineer, and J. H. Keller is in charge of the electrical plant. Mr. J. N. Bulkley acted as consulting engineer with Mr. Gresley, and Mr. John E. Free had charge of the installation work. Acknowledgments are due all these gentlemen for courtesies extended and for maps and data furnished.

DISCOVERY OF BITUMEN IN SOUTH AUSTRALIA.

The alleged discovery of a petroleum-bearing material in the neighborhood of the Glenelg River, South Australia, excited a good deal of interest among Adelaide speculators, capital being quickly subscribed to prospect the properties, says the "Australian Mining Standard." Among the early visitors to the scene was Mr. H. Y. L. Brown, the Government geologist, and his report, forwarded to the Commissioner of Crown Lands, entirely discounts the first statements as to the value and nature of the find. Mr. Brown writes: "The locality is the sea beach extending from the mouth of the Glenelg River for a mile or two westward. Owing to the heavy swell and rough weather the rocks below water-mark, which were only visible at long intervals, could not be examined. No traces of bitumen could be detected on the beach, and from this fact and the occurrence of pieces of limestone instead, I believe that these rocks are limestone and not bitumen as alleged. The lumps of bitumen previously found here are probably erratic fragments washed up from some source at present unknown, like those which have been discovered from time to time along the coast of Kangaroo Island, Yorke's Peninsula and Port Lincoln. With regard to the alleged occurrence of mineral oil, a discoloration of the sea water is observable in several places along the shore. It occurs intermittently, and in varying intensity and extent. The appearance presented from the land is as if jets of a dark-colored liquid were being discharged from the bottom into the breakers passing over it, afterward becoming diffused through the water, and leaving for a little time an oil-like scum on its surface. Some of this scum, mixed with a large proportion of sea water, was collected, and has been examined by government analyst. In his report he states that it consists of finely comminuted weed, and does not contain any mineral oil. The spring-like appearance of the discolored water is probably caused by the stirring up of the sediment by the undertow of the swell. To allow of a thorough examination of the rocks below water-mark in order to ascertain the existence or otherwise of bitumen in them, a time will have to be chosen when the tide is low and the sea calm, conditions which, I am informed, seldom occur."

* "Engineering and Mining Journal" for August 24th, 1895, page 174.

PUMICE STONE MINING.

An interesting report on the pumice stone industry in the Lipari Islands has been furnished to the British Foreign Office by Mr. Norman Douglass. Pumice occurs on most shores of the Tyrrhenian Sea and elsewhere, but that of commerce is at present almost exclusively obtained from the Island of Lipari. It is a trachytic lava, rendered light and scoriaceous by the escape of gases, and every gradation can be traced, from this condition to the heavy vitreous matter of similar composition, known as obsidian. Good pumice contains: Silica, 73·70%; alumina, 12·27%; potash, 4·73%; soda, 4·52%; oxide of iron, 2·31%; water, lime, etc., 2·47%.

Most of the volcanoes of Lipari have ejected pumaceous rocks at some period or other, but the best stone is all the product of Monte Chirica, with its accessory craters, Monte Pelato and Forgia Vecchia. The district containing the deposits lies in the northeast of the island, and covers an area of about three square miles. The mineral is excavated in various parts of it: in the plateau of Castagna, on the sides of Monte Chirica and Monte Pelato, at Perera, near the seashore of Acqua Calda, and at one or two isolated points. To this end tunnels or galleries are dug into the layers of denuded lapilli and ashes that have gradually covered the pumice. The mineral is sometimes found near the surface, at other times under a layer of white tufa. Digging is not difficult. The tunnels are lighted at intervals by small terra-cotta lamps of antique form, and are so narrow that two men can barely pass. The deficiency of air is soon felt. Sometimes, when a stratum of pumice has been reached, cross-cuts are run to gain a larger supply of pumice out of the soft material in which it lies imbedded. It is often a matter of speculation how soon pumice will be reached, so that many tunnels are abandoned while others are worked for long periods. The output may be large one day and almost exhausted the next, or the quality of the stone may change. It has been observed that certain localities produce certain qualities; thus, some of the best pumice comes from Acqua Calda and Monte Pelato, while the inferior variety, known as "alessandrina," is found at Castagna. The number of tunnels actually in working has been estimated at 250, but they vary greatly in size. The number of workmen also fluctuates according to their personal requirements and the season of the year, but has been estimated at about 1,000, of whom 600 are miners.

Pumice is brought to the surface in large blocks or in baskets, and is carried to the village of Canneto by land or to the seashore, to be taken there in boats. About one-fourth subsequently reaches Lipari by sea. It is there generally stored in the sheds of the merchants, and unless these are in a hurry to dispose of their stock it is allowed a month to get thoroughly dry. This reduces the weight and shows the quality. After that, large blocks weighing 15 lbs. and upward are allowed to crumble according to their cleavage into so-called "liscom," and all the pumice is then sorted according to its size into (1) large ("grosse," lumps down to the size of a fist); (2) medium ("correnti"); and (3) small ("pezzame," from 2 in. downwards). The quality is primarily a matter of texture. As pumice is used for polishing purposes, an essential condition is homogeneity of structure and freedom from included crystals. The stone must neither be too brittle nor too hard, and it is in these respects that the Lipari pumice surpasses that of other volcanic regions. After it has been divided according to its size, the large stones ("grosse") are again sorted into three superior qualities called "fiore," "quasi-fiore," and "mordente." These are never filed. After they have been selected, the remainder of the "grosse" are filed by hand in order to remove asperities of surface and to see whether the stone is not too friable for use. They are then re-classified into first, second, and third ("bianche," "dubbiose," and "nere"). Large pieces of inferior pumice, known as "rotonde," are never trimmed. Besides this there is an entirely different variety called "alessandrina," which is cut with hatchets into brick-shaped pieces and used for smoothing oil-cloth, and a heavy dark stone, "bastardone" (always trimmed), as well as many less important varieties. The "correnti," commercially termed "sorts," contain all varieties, and are generally exported as they are; the "pezzame" is usually, but not always, ground down to a powder of more than 10 different degrees of fineness, according to the work for which it is required.

So extensive are the deposits that the supply is practically inexhaustible. The pumice washed up by the sea is hardly ever collected nowadays. The number of tunnels could be increased indefinitely, and if they were worked on a larger and more systematic scale the output would probably be trebled. Thus the superior material which is now obtained, not without danger to life, by running tunnels into the precipitous internal crater wall of Monte Pelato, could be reached by longer tunneling from the outside, where there are only a few caves at present. The only menace to the pumice industry lies in the introduction of artificial polishing materials.

Coal in Russia.—In a British consular report from Taganrog, it is stated that the returns of the production of the collieries situated in the Donetz basin in 1894 has not yet been published, and only the quantities transported by the different railway companies can be given as a criterion of the past year's work. The total quantity transported was 3,132,418 metric tons. The figures for the two previous years were 2,657,397 tons in 1893, and 2,526,801 tons in 1892. The total quantity of anthracite coal transported from the Grushevka-Vlassov mines during 1894 was 532,260 tons, as against 492,330 tons in 1893 and 505,020 tons in 1892.

VARIATIONS IN THE MILLING OF GOLD ORES.—XII. THE BLACK HILLS, SOUTH DAKOTA.*

Written for the Engineering and Mining Journal by T. A. Rickard.

(*Continued from page 223.*)

In their general arrangement the mills follow a common planned design. The batteries are placed in two rows upon a flat site. In the Father de Smet, erected in the summer of 1878, the 16 batteries are arranged in two rows of 8 facing each other and discharging toward the center of the building. This arrangement, convenient in that it brings all the amalgamating apparatus under one view, has nevertheless in practice been found less serviceable than that adopted in all the other plants. In these the batteries are also in two rows, but are placed back to back with ore bins and feeders distributed in the space between. The cars on arrival at the mill are emptied so as to send half their contents to either side into the rows of ore bins, the bottoms of which make an angle similar to a flat inverted letter V, as is shown in the accompany drawing† of the Highland Mill. The Father de Smet has the largest bin capacity, obtained, however, at the expense of darkening the amalgamating tables. Mr. Bowie, who designed the mill, states that the ore bins have at times contained 1,500,000 lbs. of ore without injury to the structure.‡

At the Highland mill the main shaft runs through the center of the building, over the battery sills, and connects with the counter shaft immediately behind the stamps. At the Golden Star the driving shaft is placed on an approximate level with the cam shaft so that the battery belts are nearly horizontal. In the Homestake the line shaft runs direct from the engine through the center of the mill along the battery sills and the battery belts extend each way at about an angle of 30 degrees. At the Deadwood-Terra the main shaft on one section is a continuation of the crank shaft of the engine, the other takes its belt from this. The counter shafts are under the feed floor just behind the batteries.

Of these diverse arrangements that of the Golden Star mill obtains common preference. It is similar to that generally in vogue in California. The arrangement to be run in the old Homestake mill entails a small first cost, it is simple, and it gives an equal pull either way upon the main shaft, but it is nevertheless not to be preferred to that of the Golden Star. The placing of the countershaft immediately under the feed floor and behind the batteries is objectionable, because this is a part of the mill particularly subject to the dust and dirt surrounding the crushing apparatus; it is inaccessible and inconvenient; it requires the use of tighteners, and it is affected by the vibration due to the falling stamps. The Highland mill uses up three belts while the Star is wearing out one. The arrangement obtaining in the latter places the driving shaft nearly horizontal with the cam shaft, dispensing with tighteners, it renders everything well lighted and easily accessible and by the use of a framework independent of the battery sills it minimizes the effects of the vibration due to the stamps.

When first erected the order of the drop in any two adjacent batteries was:

1-5-9-7-3 | 2-6-10-8-4

The pulp used to wash always one way and tended to accumulate at one end. Now it is:

1-7-3-9-5 | 2-8-4-10-6

At the Deadwood-Terra the order in any single battery is 1-4-2-5-3, which corresponds to the last above given. The order 1-5-2-4-3 tends to scour the chuck-block and wear the screen because two stamps drop almost simultaneously, but on the other hand this last arrangement promotes rapid crushing better than any other, and many millmen prefer it.

In the matter of the saving of the gold-bearing sulphides remaining in the tailings, the mills of the Belt afford no commendable example. The sulphides of the Deadwood-Terra are too low in value to be worth collection, but at the mills on the Lead City side of the hill shaking tables are in use. They are the familar, very simple and excellent machines known as the Gilpin County bumping tables. The number of them in use is, however, absurdly disproportioned to the amount of material going over them, so that the six concentrators at the Homestake and the eight machines at each of the other two, the Highland and Golden Star mills, must be considered only in the light of a badly planned experiment. At the Columbus there is one concentrator, treating the pulp from 5 stamps, the ore containing 15% and the concentrator collecting only 6% because it is overcrowded with pulp.

During the year ending June 1st, 1894, the two Homestake mills produced 915,010 lbs. of concentrates whose assay value varied from $5 to $8 per ton. They consist of iron pyrite, arsenical pyrite and pyrrhotite. The ore contains from 3 to 5%, but only about 2% of the sulphides are saved. They are sent by rail to the Deadwood & Delaware Smelter, just below the town of Deadwood, where they are treated at a charge of half their assay value and converted into an iron matte, very low in copper and rich in gold, which goes to the Omaha & Grant Smelting and Refining Company, at Omaha, for further treatment.

Turning to the process of gold extraction in the various stamp mills, we find that it is carried on in the mortar itself, on apron plates, by means of traps and is finally partially supplemented by an inadequate effort at concentration.

The mortar becomes an amalgamating machine by the addition of free mercury, as already described. From the mortar the pulp is discharged through the screens and drops 6 to 10 in. upon the apron plates. This drop serves no purpose. A splash-board, placed so as to face the discharge, receives and breaks the fall of the issuing pulp. This prevents the sand from scouring the surface of the apron plate.

THE HOMESTAKE COMPANY'S STAMP MILLS, SOUTH DAKOTA.

In the Golden Star and Homestake mills the aprons are 10 ft. long by 4½ ft. wide. In the Highland the length is 2 ft. less. Two aprons deliver their pulp to one tail plate having a size equal to the apron (the general arrangement is well illustrated in the photograph* of the interior of the Golden Star mill. See page 223). Both apron and tail plate have an inclination of 1½ in. per foot. An attempt has been made to work the lower plate with a less slope, but the gravity of the pulp prevented the plate from clearing itself. The mill men complain that the lower plate is hard to keep in order, because of the small amount of amalgam which it carries on its surface. The remedy would be to clean it less often, or to use an electro-plated silver surface. Amalgam is the best thing for keeping plates in order, and is superior to all the chemicals in creation.

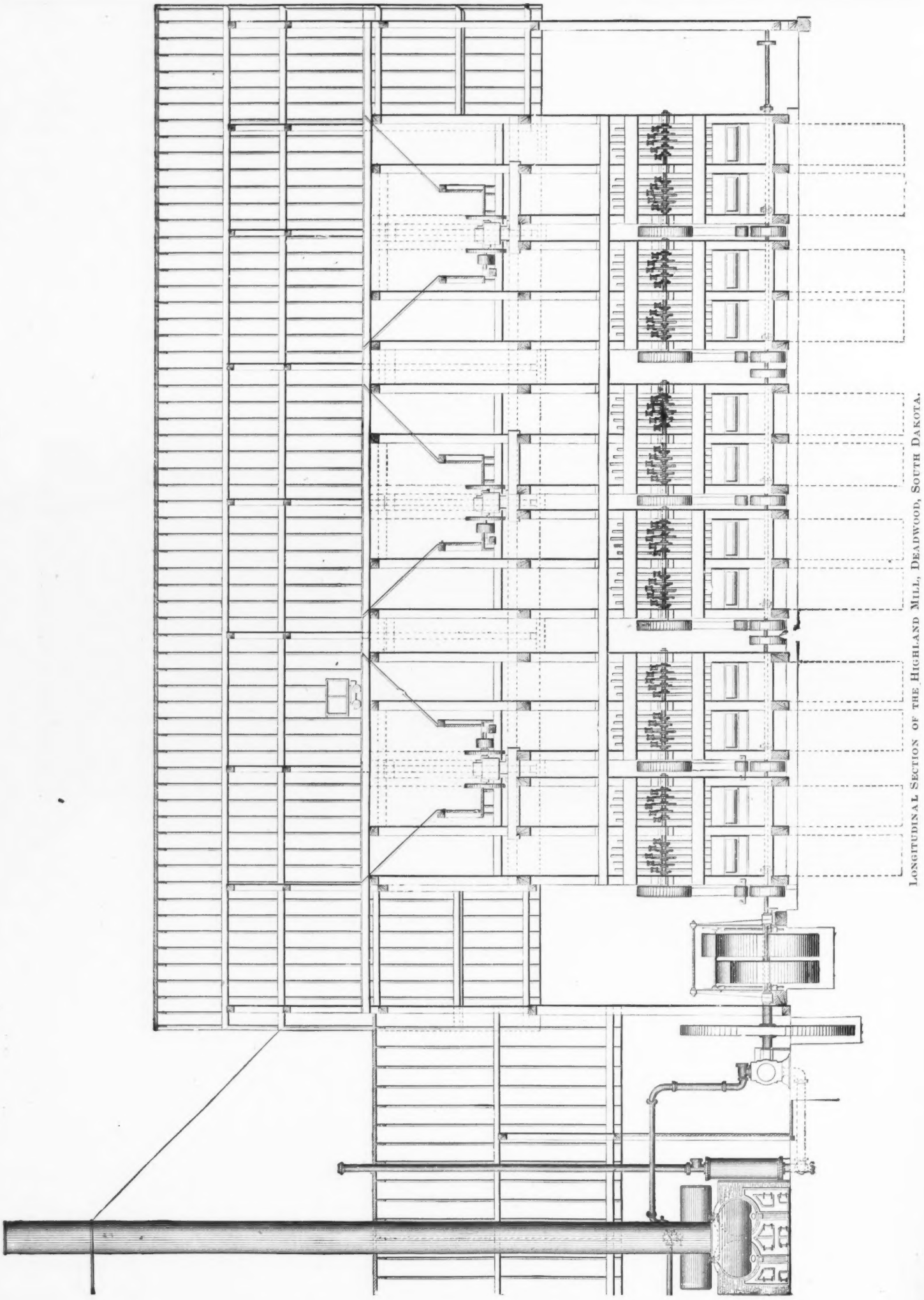
All the plates are of plain copper. In the Highland mill the launders have their bottoms covered with copper. The plate which goes inside the mortar is cleaned up twice per month; so also the tail plates. The aprons are cleaned and dressed every morning. The tail plate is also dressed each day.

At the Deadwood-Terra the aprons are 11 ft. long by 4 ft. 8 in. wide. The sluice or tail plate is 8 ft. long by 16 in. wide, forming an absurd apparatus for arresting gold. At the Columbus the apron is 14 ft. long by 4 ft. 3 in. wide. The inclination is 2 in. per foot.

At all these mills there are traps or other similar devices for arresting escaping mercury and amalgam. In the Golden Star, for instance, there is a 2 in. riffle or trap at the bottom of the apron, and at the head of the tail plate there are two deep traps with a drop of 18 in. The first mentioned riffle or shallow well is said to do the best work because the pulp which goes over it is flowing smoothly and the conditions favor the separation of the amalgam and its arrest. In the case of the subsequent drop traps the pulp is so agitated by the greater speed of its passage and the

* Copyrighted by the Scientific Publishing Company.
† Which I owe to the courtesy of the builders, Fraser & Chalmers.
‡ Transactions American Institute Mining Engineers, Vol. X., page 88.

* Specially taken for me by Mr. J. E. Meddaugh, of Lead C

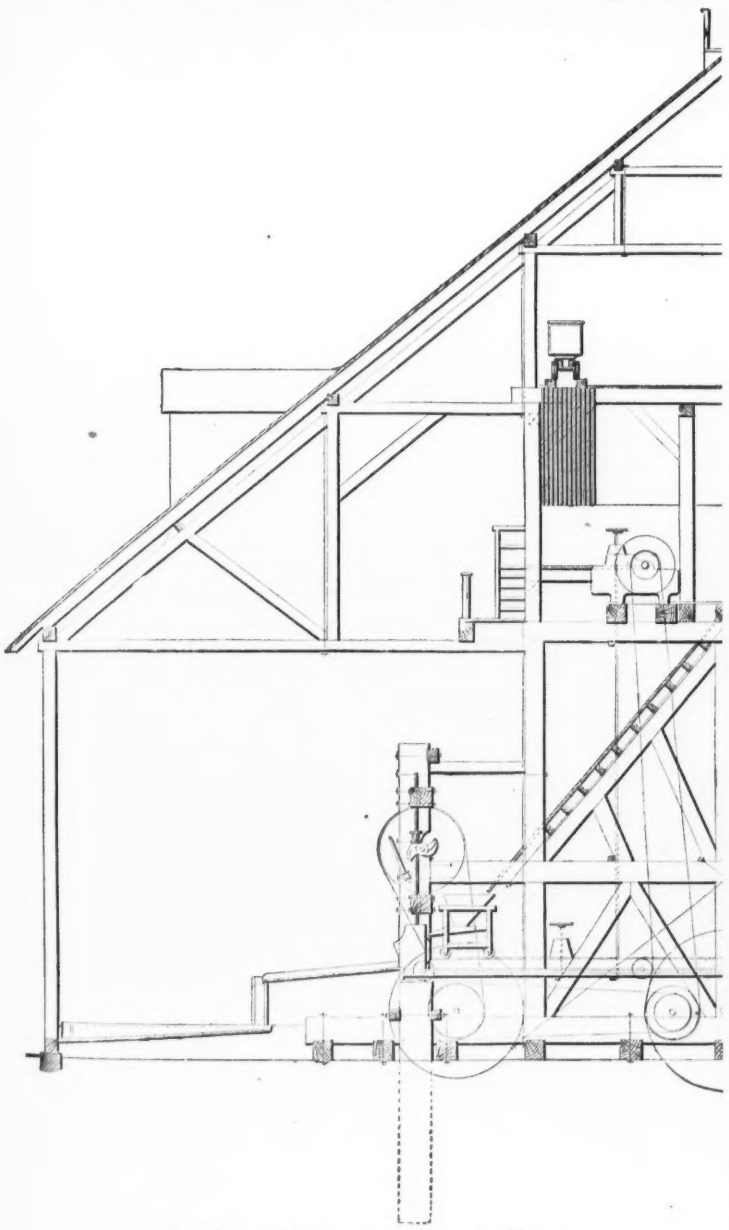


LONGITUDINAL SECTION OF THE HIGHLAND MILL, DEADWOOD, SOUTH DAKOTA.

depth of the drop that opportunity for settling is less. These traps are cleaned up every two weeks, the accumulated pyrites are shoveled into buckets and then passed into a pan which extracts all the free amalgam. The residues from the pan are then fed into a particular 5-stamp battery, provided with a No. 10 slot screen. They are passed through this battery twice and are then sent to the smelter, their final assay value being about $38 per ton.

The above suggests the Australian practice of mercury wells, particularly employed at Clunes, with the obvious difference that the Homestake traps are not supplied with free mercury. It is claimed that if sufficient mercury is fed into the battery no free gold should escape and the mercury in the traps would merely serve to thin the amalgam and make it easier of escape. The traps catch concentrates and amalgam only.

At the Homestake mills about one-half of the total amalgam comes



HALF CROSS SECTION OF HIGHLAND MILL.

from the inside plate. The traps catch about 1% of the total. At the Highland mill 4 to 6 lbs. of amalgam are obtained from the traps at each clean up. At the Deadwood-Terra quite 70% of the total amalgam comes from the inside of the battery.

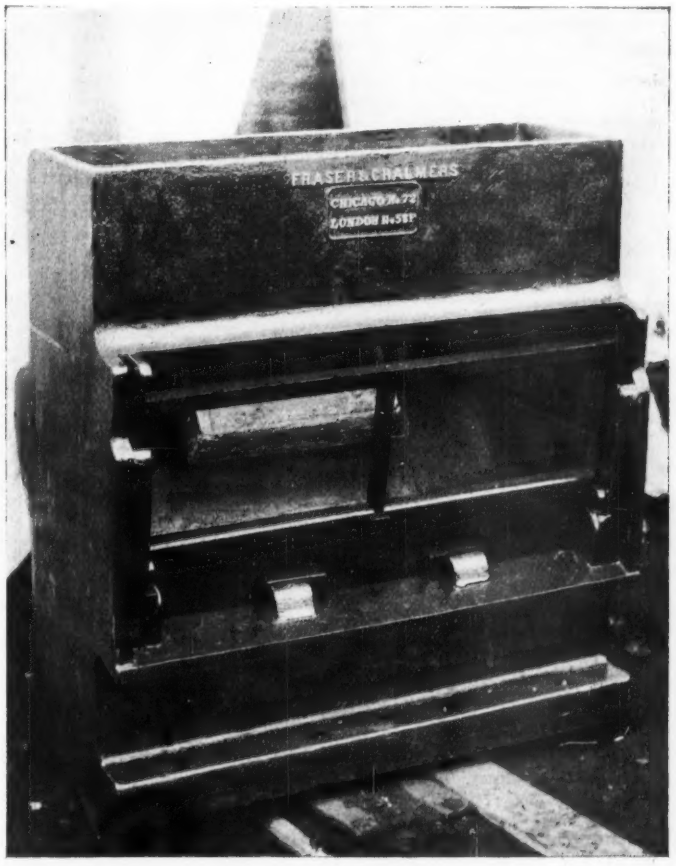
An effort is made to maintain the battery water as near 70° F. as possible. In the winter months the exhaust pipe of the engine is turned through the supply tank and keeps the water warm. If the temperature is raised too high it is found that the mercury becomes too mobile and runs down the plates, leaving the amalgam too hard for good service. Very few chemicals are used. At the Golden Star mill only 10 lbs. of potassium cyanide are consumed per annum. It is found advantageous to wash the plates with a weak solution of salt and sulphuric acid, a handful of salt and half a teacup of acid in 2½ gals. of water.

The concentrating apparatus, such as it is, has been described already. Its inadequacy is recognized and experiments are now being made with jigs which promise well. Several years ago two blanket houses were in use; the blanketings were worth from $20 to $30 in assay value, and were obtained by employing Brussels carpets.

The best comment to offer on the existing methods is to state the fact that a Cornishman a few miles below the mills has been successfully treating, by means of two simple piston jigs, the tailings carried down in the creek. His success has attracted the attention of the Homestake management and induced the commencement of the experiments above referred to.

The various castings required in the mills—such as cams, tappets, dies and even mortars—are made on the spot at the foundry controlled by the Homestake management. In the matter of breakages it may be stated that at the Deadwood-Terra mill 29 stems were broken in April, the ordinary average being 20 per month. At the Golden Star the average is 40 per month. The cast-iron cams, made locally, do not give such good service as steel cams imported from the outside, but other business considerations cause the management to prefer them. The shoes come from Chicago and cost 2c. per lb., to which the freight of 85c. per 100 lbs. must be added. The dies, home made, are estimated to cost at the rate of 2c. per lb. The latter are made of iron slightly softer than that of the shoes, and therefore the conditions for good service, in so far as relates to the relative hardness of the metal in the shoe and die, are obtained.

Chrome steel shoes did not give as good service as the cast iron. The chrome steel dies wore better than the iron, but they were rejected on account of their greater cost, at that time 6c. per lb. in Brooklyn, to which freight must be added. Shoes made of ferro-aluminum gave good results. In this connection it may be mentioned that statements regarding the service of shoes and dies made of particular mixtures of iron or steel are not always reliable because, first, of the varying quality of succeeding shipments of such material and, secondly, the fact that their service is largely dependent upon whether both shoes and dies are made of the particular metal or whether the shoe is used with a die of a differ-



THE HOMESTAKE MORTAR.

ent metal or vice versa. The chrome shoes at the Homestake wore smoothly and cupped slightly. I may here mention the observation, made by Mr. A. L. Read, of the Golden Star mill, that the slight hollowing of the shoe helps the crushing capacity of the mill by tending to hold the pulp under the stamp instead of splashing it out. This does not, of course, refer to irregular cupping, but simply to an even gentle hollowing out of the face of the shoe.

The guides in use are the invention of Edmund Major, formerly a carpenter in the employ of the company. They are made of maple and are capable of convenient adjustment so as to counteract the tendency of the stem to work away from the side on which the cam is placed. One stem can be removed without taking down the entire series of guides belonging to any single battery.

Key tappets, with two keys, are in general use. The stamps of two neighboring batteries revolve toward one another. I noted that it took from five to nine drops to enable the stamp to make a complete revolution. The variability in this respect was mainly due to the quantity of grease upon the surface of the cam

The work of the mill used to be checked, not by the regular taking of pulp samples, but by the rough testing of the ore coming from the mine by the sampler, a man whose business it was by careful panning to estimate the amount of free gold in the mill stuff. He made a daily report and by that report the mine foreman was guided in the distribution of his stoping activity. It has always been the aim of the management to maintain a uniform monthly output. It is the practice now to take samples of the tailings in the afternoon of each day at each mill. They are taken every hour for a period of five hours by the use of a dipper placed at the foot of each apron plate. The gold contents are determined by fire assay. Nothing more careful or more intelligently systematic is ever done with a view to determining the actual extraction accomplished in the mills.

The annexed plan and section, which I owe to the courtesy of the

makers, Fraser & Chalmers, Limited, of the mortar in use at the Homestake mills, will be of service in indicating the conditions under which the inside amalgamation is carried on. The pattern was changed about 10 years ago, the mortar being made narrower and the issue deeper. The latter was also further increased by the use of chuck-blocks. The inside width of the mortar at the level of the discharge is 13 in. At the Columbus mill it is 1 in. less. For purposes of comparison it may be mentioned that at the Pearl mill, Bendigo, the inside width is 15 in., at the North Star mill, Grass Valley, 17½ in., and at the Hidden Treasure mill, Blackhawk, it is 24 inches.

The accompanying photograph represents the latest design of this type of mortar. The makers inform me that a number of changes have been made in its construction. The original Homestake mortar had outline dimensions as follows: Length of base, 4 ft. 8 in.; width of base, 2 ft. 4 in.; height, 4 ft. 11½ in.; weight of mortar, 6,500 lbs. The last constructed mortar weighs 7,300 lbs., and its length of base is 4 ft. 8¾ in.; width of base, 2 ft. 4¼ in.; height, 4 ft. 10¼ in. The latter is provided with cast-steel false bottoms 2½ in. thick, also with cast-steel liners ¾ in. thick along the sides of the mortar, and a similar lining ½ in. thick upon the feed hopper. It is provided upon the inside with copper plates ¼ in. thick and furnished with chuck-blocks, each of which is copper lined. The chuck-blocks are made in a series of three, 6 in., 8 in. and 10 in, deep respectively. The tendency is to depart from the original weight of the stamps, 850 lbs., and to use 900 lbs. and more.

A new mortar lying outside the Golden Star mill invited inspection, resulting in the following comments: The feed-hole is 4½ in. wide, and has vertical sides, a common but injudicious arrangement. The feed-hole should be smaller at the top than lower down, so that pieces of ore would drop down into the mortar freely, if they entered at all. (In the Father de Smet mortar, designed by Mr. Bowie, the top of the feed-hole is so narrowed.) The bottom of the feed-hole is too thin. This part of the mortar is the first to wear through. The lip is the next p rt to become worn out. Then holes begin to appear in the ends. The Homestake mortar lasts from four to five years. The back projection, designed to throw the splash to the front of the battery, is too near the shoe. The distance between the shoe and this portion of the mortar should at least be equal in size to that of the pieces of ore which are permitted to enter. As it is less than this, pieces of ore often get wedged in and require dislodgement with a crowbar.

An incident worthy of notice was the trial, from November, 1888, to the middle of June, 1889, of a steam stamp, similar to those so successfully used at the Lake Superior copper mines. Its size was 11 × 26 in., and it gave the best crushing results with 22 in. strokes and 95 of them per minute. The water consumption was 7½ miner's inches per 24 hours, when crushing from 125 to 135 tons of ore, this being equal, therefore, to about 900 gals. per ton of ore. The steam pressure when doing such work was maintained at 85 lbs., but with 110 lbs. pressure a maximum crushing capacity of 192 tons was attained.

No. 7 needle slot screens made of steel of No. 17 gauge were employed. The use of a finer mesh entailed an enormous waste, owing to the pulp becoming banked up inside, always followed by the bursting of the screen. The screens were replaced every six days.

The amalgamating tables were 12 ft. long by 4 ft. wide, and the traps were 30 in. deep by 20 in. square inside. The tables had a fall of 1¼ in. per foot. Owing to the rapidity of the crushing no plates could be employed inside the mortar, and it was found that even when using screens of an identical kind the pulp issuing from the steam stamp was coarser than that discharged by the ordinary stamp mill because the issue with the former was more forceful than with the latter. The crushing capacity of the steam stamp as measured per cord of wood consumed for fuel equaled the ordinary Homestake stamp, but the former crushed more coarsely. Moreover, the jar was such as to cause the amalgam on the tables to ball up, the mercury exuding and running away. This is a defect to be remedied by a slight change in the construction of the mill. In general it may be said that the steam stamp crushed too fast for either concomitant or subsequent successful amalgamation.

Before venturing on a criticism of the milling practice it will be necessary to indicate the conditions which have determined its character. The mines contain bodies of gold-bearing ore which, while low grade, are of such enormous dimensions as to guarantee a large output for long periods of time, and justify the big scale on which operations are conducted. The ore itself is largely chloritic schist, unequally traversed by quartz. Certain portions of the country rock are quartzose and carry gold; they are therefore quarried above ground and stoped underground. There is no marked definition between what is valuable (and therefore 'ore') and what is valueless (and therefore 'country rock'). The pay ore usually carries sulphides, of which iron pyrite, pyrrhotite and arsenical pyrite are most noteworthy and of which the last is more particularly the comrade of the gold.

The ore is broken without any attempt at sorting. Its low tenor and the mode of its occurrence alike render such a step impracticable. At one time the porphyry, flanking and overtopping the ore bodies, was sent to the mills. It is now dropped down to the lower workings and used as filling to sustain the timber work.

In the 12 months ending June 1st, 1894, the two Homestake mills treated 309,210 tons and produced $1,390,610, equivalent to a yield of $4.49 per ton of ore. What the ore actually contained and what the tailings really carried away no one knows, but there is reason to believe that the loss in the tailings averages more than $1 and that the average extraction is not more than 75%. At the Deadwood-Terra the output averages about 20 000 tons per month and the product of the mill has a value of about $32,000, making the yield per ton about $1.60. Even this material leaves a small margin of profit over all mining and milling expenses. The tailings are said to carry 30 to 45c. per ton, from which, judging this to be the minimum, I would estimate the extraction to be slightly under 75%.

The ore is indeed rushed through, but that is because it is so low in gold contents and slower treatment would cost too much per ton. It is reduced by methods both ancient and simple, but that is because the mill stuff itself is of simple character, and neither invites nor warrants the use of complicated processes.

It is the old question of pushing technical perfection of treatment until it prejudices commercial success. Not that the two are antagonistic, except when one of them is carried further than common sense suggests. Thus, there is no doubt but that, if the mills were set to crush the ore at the more ordinary rate of two tons per stamp, the extraction would be increased, say 10%, equivalent to a gain of 45c. per ton, but then the cost of milling would be, if not doubled, at least largely augmented, equivalent to an increase, say, of 60c. per ton. By crushing slower and thinning the pulp passing over the plates amalgamation would be improved, but the increased extraction would be far more than offset by the added cost. Nor, it must be remembered, would this rapidity of treatment be accompanied by so small a loss, comparatively, were it not for the fact that the ore is of great simplicity, and yields up its gold readily to simple methods. In this respect it even surpasses the free-milling ores of the main belt of the foothills of the Sierra Nevada in California.

Such results, having in view the character of the ore and the rapidity with which it is rushed through the mills, is, I consider, very good work. It has been said by unfriendly critics that "haste and waste" best describes the methods of the Homestake Company. It has been urged that the methods are crude and extravagant in their seeming want of proper appliances to make the gold extraction complete. Such comment is largely due to a misconception of the objects aimed at. The milling practice from a purely technical standpoint is insufficient and inadequate, but from the commercial aspect of the matter it commends itself on the whole, barring certain details, as eminently successful.

The successful results are largely due to the pattern of the mortar. The Homestake mortar, in my opinion, is excellently designed to give the two results usually desired by the millman, namely, a large degree of amalga-

TABLE NO. IV.

Showing the labor employed in the principal stamp mills.

Name of mill	Deadwood-Terra.			Homestake.			Golden Star.			Highland.		
Number of stamps	160			100			160			120		
	Number.	Shift hours.	Wages, dollars.	Number.	Shift hours.	Wages, dollars.	Number.	Shift hours.	Wages, dollars.	Number.	Shift hours.	Wages, dollars.
Foreman	½	A	$7.00	⅛	B	$8.00	⅛	B	$8.00	⅛	B	$8.00
Millwright	1	12	3.50	1	12	4.25	1	12	4.25	1	12	4.25
Pipefitter	..	..	..	⅛	C	3.50	⅛	C	3.50	..	D	....
Enginemen	2	12	3.00	2	12	3.50	2	12	3.50	2	12	3.50
Firemen	2	12	2.50	2	12	3.00	2	12E	3.00	2	12	3.00
Night foreman	..	..	....	⅛	F	5.00	⅛	F	5.00	⅛	F	5.00
Head amalgamators	2	10	3.50	1	10	4.00	1	10	4.00	1	10	4.00
Amalgamators	4	12	3.00	4	12	3.50	4	12	3.50	4	12	3.50
Crushermen	3	10	2.50	2	10	3.00	2	10	3.00	2	10	3.00
Oilers	2	12	2.50	2	12	3.00	2	12	3.00	2	12	3.00
Feeders	3	12	2.50	2	12	3.00	4	12	3.00	4	12	3.00
Laborers	1	10	2.50	2	10	2.50	4	10	2.50	3	10	2.50
Total	20½		$59.00	19⅛		$64.32	27⅛		$75.32	21⅜		$70.07

TABLE NO. V.

The Cost of Stamp Milling in the Black Hills, South Dakota.

A.—The Homestake Mill.

Year	1887-1888	1888-1889	1893-1894
Number of stamps	80	80	80
Tons treated	96,790	103,780	104,995
Labor	$0.2561	$0.2395	$0.2543
Supplies	0.0130	0.0045	0.0165
Water	0.1729	0.1562	0.1986
Wood	0.2766	0.2230	0.0597
Coal	....	....	0.1784
Machinery	0.0922	0.0893	0.1097
Oil	0.0119	0.0084	0.0034
Candles	0.0016	0.0014	.....
Quicksilver	0.0103	0.0053	0.0083
Lumber	0.0070	0.0139	0.0167
Timber	....	....	0.0155
Total cost per ton of ore	$0.8405	$0.7415	$0.8551

B.—The Golden Star Mill.

Year	1887-1888	1888-1889	1893-1894
Number of stamps	120	120	160
Tons treated	146,565	161,755	204,215
Labor	$0.2138	$0.1755	$0.1556
Supplies	0.0079	0.0044	0.0121
Water	0.1712	0.1622	0.2043
Wood	0.2739	0.1959	0.0346
Coal	....	....	0.1637
Machinery	0.1220	0.1088	0.1057
Oil	0.0084	0.0066	0.0021
Candles	0.0014	0.0014	.....
Quicksilver	0.0252	0.0082	0.0071
Lumber	0.0054	0.0088	0.0160
Total cost per ton of ore	$0.8292	$0.6718	$0.7012

mation inside the battery, accompanied by a minimum interference with the rapidity of the crushing.

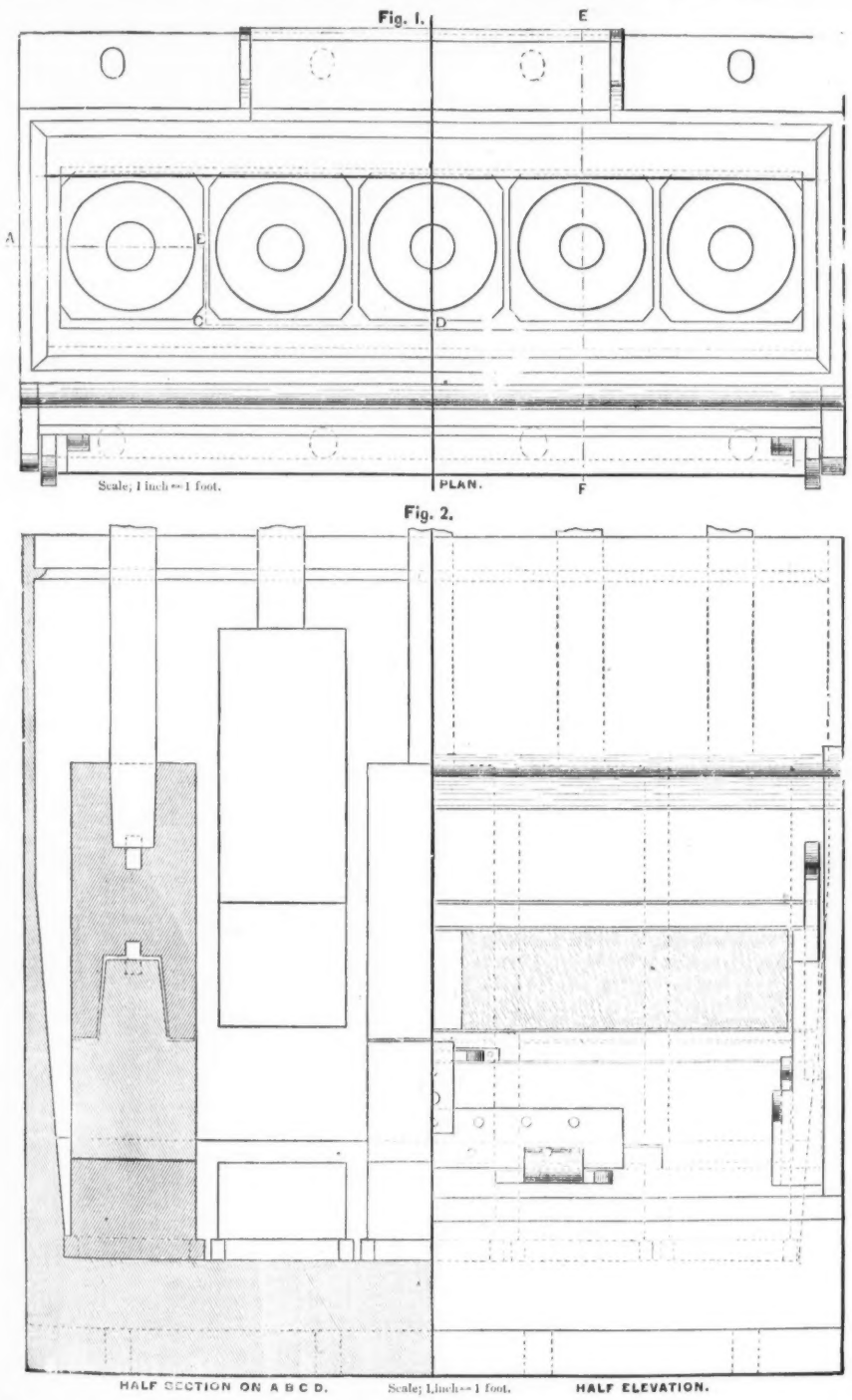
Before concluding it may be permissible to point out some respects wherein the milling appears open to criticism. The collection of the sulphides remaining in the pulp after amalgamation is, of course, totally inadequate, but it will be submitted that the present method is only experimental, an excuse which does not explain why so many years have been permitted to elapse without a proper settlement of the problem.

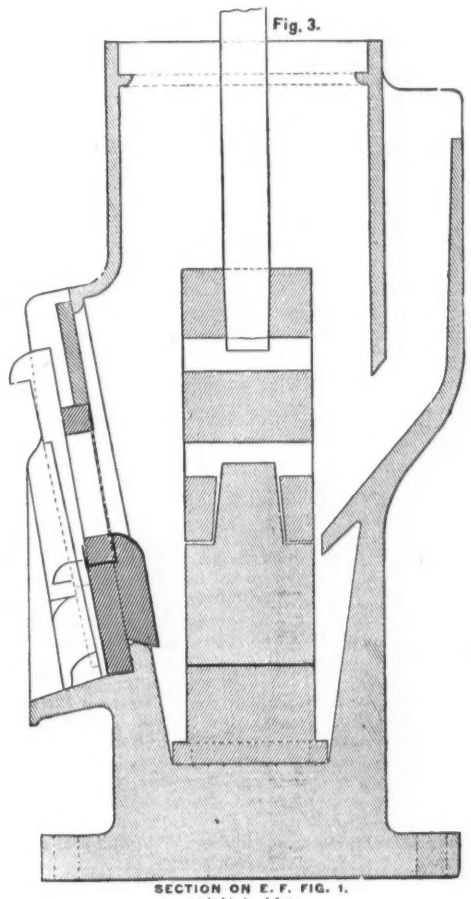
Two aprons deliver their pulp to one tail plate of a size equal to a single apron. The gradient is the same in both cases. Therefore the lower plate is called upon to treat twice the quantity of pulp which goes over a single apron, and it is expected to do efficient work despite the well-understood fact that whatever gold escapes the apron must be finer, or otherwise more difficult to save, than that which has been arrested upon it. Instead of two aprons delivering to one tail plate, one apron ought to pass its pulp on to two tail plates, and by using additional water the pulp would be so spread over an increased amalgamating surface as to add largely to the chance of successful extraction. Such at least should be the idea instead of the reverse.

The wide tail plates have only been in use three years. They were formerly 20 in. wide. At the Deadwood-Terra they are 16 in. wide and form a truly idiotic amalgamating device. "Sluices," they are aptly termed, since they are excellently devised for carrying off the pulp, the mercury, the gold, and everything else.

All the plates at the Homestake are of plain copper. Experience elsewhere commends the electro-plated copper and especially in large establishments which can afford to do their own plating. The use of a 2-oz. or 4-oz. plated copper is especially to be recommended in the case of the tail plates of the Homestake since this would render it easier for the millman to keep them in order and would, I believe, increase their efficiency.

Thus, in spite of the incompleteness due to a want of a progressive spirit in the management, the mills of the Homestake offer an excellent illustration of commercial success in the working of unusually large deposits of low grade gold-bearing ores.*





THE HOMESTAKE MORTAR.

An Electric Mountain Railroad in the Isle of Man.—The first electric mountain railroad in the United Kingdom has just been completed and inspected by the Board of Trade officers. It will soon be opened for traffic. The road extends from Laxey in the Isle of Man to the summit of Snaefell, a mountain much visited by tourists. The road is 4¾ miles long and has a continuous grade of 1 in 12, or 440 ft. to the mile.

The Austrian Iron Trade.—The syndicate of Austrian Ironmasters reports sales for the seven months ending July 31st as follows: Bar and merchant iron, 111,000 metric tons; beams and shape, 42,000 tons; plates, 20,000 tons; structural iron, 10,400 tons; forgings, 2,300 tons; bridges, 2,500 tons; railroad material, 7,500 tons; total sales, 195,700 metric tons. This is a decrease of about 14,000 tons as compared with the corresponding period of 1894. This decrease was wholly in bar and merchant iron, the other products showing a slight increase.

Tin Mining in Singapore.—Last year's output of tin in Singapore exceeded any previous year's record. Exports rose by 17% over those of 1893, and local prices were kept up in spite of a heavy fall in London quotations. The only drawback to the prosperity of the mines is said to be the scarcity of labor.

* I am indebted for information courteously given to me by Mr. T. J. Grier, the manager; Mr. Steele, the millman; Mr. Trewick, the mine superintendent, and other gentlemen belonging to the staff of the company.

THE MANUFACTURE OF PAVING BRICK IN CENTRAL IOWA.

Written for the Engineering and Mining Journal by L. Balliet.

THE CALYS.

In the choice of clays for the manufacture of paving brick and other vitrified ware, three qualities are necessary to make the production successful and economical, viz.: 1st. Combined refractoriness and fusability. It must be refractory enough to "stand up" or keep its shape while the process of fusion or vitrifaction is going on. 2d. It must be plastic enough to make working easy and perfect. Too much plasticity is as objectionable as too little. Sometimes it will be found that the above requirements may be secured by mixing two or more clays, but the economy of this must be considered locally by the expert. 3d. Supposing the two above-mentioned qualities secured, there is yet another on which the color and the smoothness of the surface of the ware depends, namely, the amount and character of the iron that the clays carry. If the iron be too low in quantity it is impossible to get a good red brown or dark color to the ware, which seems to be a requirement with most of the purchasers of paving brick.

In Polk County, Ia., the requisite qualities are found in the carboniferous shales, of which I give in the table a general section, to which I will refer to localities by number:

GENERAL GEOLOGICAL SECTION IN VICINITY OF DES MOINES, IA.*

No.	Strata.	Feet.	Ins.
23.	Variegated clay shales	18	
25.	Blue limestone, nodular, impure, weathering brown, fossiliferous		8
24.	Variegated shales	8	
23.	Bituminous shales, with concretionary calcareous masses below, fossil bearing	3	
22.	Coal	2	
21.	Light yellow and drab shales	7	
20.	Variegated clay shale	4	
19.	Nodular limestone, earthy, passing in places into marl, highly fossiliferous		6
18.	Light colored and variegated clay shales	5	
17.	Limestone (like No. 19, but not so fossiliferous)		10
16.	Light colored clay shales	5	
15.	Sandstone, soft, micaceous, concretionary in places, and passing into sandy shales elsewhere	25	
14.	Light colored shales	4	
13.	Impure coal	2	
12.	Light and dark colored clay shales	20	
11.	Highly fossiliferous bituminous shale		8
10.	Coal	2	
9.	Fire clay	1	
8.	Variegated and sandy shales	15	
7.	Massive sandstone	6	
6.	Coal	4	
5.	Fire clays	2	
4.	Sandy and variegated clay shales	30	
3.	Bituminous shales	5	
2	Coal	5	
1.	Fire clays	6	

* After C. R. Keyes. Vol. II. Iowa Geological Survey, 1894.

In the pit of the Des Moines Brick Manufacturing Company, numbers 21 to 14 inclusive are exposed. The company uses in the manufacture of its brick all the strata here included except the two small bands of limestone.

In the pit of the Iowa Brick Company, numbers 15 to 24 are exposed, the company mixing all the clays as far as practical, and using the whole, excepting, of course, the limestone.

In the pit of the McGorrish Brick Company 24 to 16 are well exhibited, with the exception, perhaps, of number 19, only one band of limestone being present. The company uses all except limestone.

An important item in brick making is the fuel supply. That is had in the coal beds; within a few hundred feet of each brickyard are one or more operating mines.

BURNING KILNS.

In this district I find that there are four burning kilns represented—the Eudaly, Henney, Dewhirst, and the old-fashioned round kilns, varying in capacity from 40,000 up to 850,000. The Eudaly and Henney are much alike, both being open-bottom, down-draft kilns. The Eudaly is the favorite and gets good results, and uses about 2,200 to 2,500 lbs. of coal per thousand brick. The Henney gets good results, except near the ends, where several thousand imperfectly vitrified brick must be removed, as building brick, before they strike good pavers. I am informed by the superintendent that the Henney as here used gets from 9,000 to 12,000 building brick each burn, off the ends, but personal observation does not quite verify these statements. The Eudaly burns clear to the end, perfectly vitrifying the end course. The Henney kiln uses 2,000 to 2,200 lbs. of coal per 1,000 brick.

The most expensive kiln to use is the round kiln. It is obviously not a kiln for burning paving brick, though in use at the McGorrish Brick Works. The draft principle is the same as the Eudaly and Henney, being a down-draft open-bottom kiln. Superintendent McGorrish informs me that he has burnt these kilns with 1,000 lbs. of coal per 1,000 brick, but that there were too many building brick in the kiln to make it profitable. Most of their brick are now burnt in the Eudaly, and they are not repairing the round kilns as they give out.

Superintendent Simon Dewhirst, of the Iowa Brick Company, has invented and patented what he calls a combination horizontal and down-draft kiln. This is a closed bottom kiln, the bottom being paved just as a street is paved with brick, and the Iowa Brick Company is changing its Henney kilns for it as fast as they give out.

This kiln is rectangular in shape with furnaces 6 ft. apart, the first furnace being just at the end. Between that and the next furnace is a flue and so on until the last furnace is exactly at the other end. This makes 9 up-draft flues for 10 furnaces. The advantage claimed for this arrangement is the equal distribution of heat from end to end. The heat passes up on the inside much the same as in other kilns forcing the cooler air out through a small opening 6x10 in. near the floor, into the flues. There is thus no big dead air space left underneath. This kiln consumes 1,600 to 1,700 lbs. of coal per thousand brick, vitrifying all perfectly.

I have spoken of kilns "giving out" which is a very common fault with most kilns, but they give out faster here than is necessary as but few are made of fire-brick, most of them being made from the product of the plant. Of course all have fire-brick around the furnace, but the arches are built in the usual way with the brick set in endways, and I have seen several of the kilns with from 4 to 5 in. melted and burnt off, leaving only a 3-in. or 4-in. arch. To construct these kilns is expensive and doubtless it would cheapen the cost of production materially to put in fire-brick arches. The brick of one plant I am reliably informed cost the company $7.50 per M. in 1894, to produce. On inquiry I found that its repairs were high last year, especially in the kilns.

THE BURNING OF PAVING BRICK.

Not a little importance is attached to the burning of paving brick, in order to secure certain qualities. 1st. Reasonable cost. This includes the construction of burning kilns, so as to produce the greatest per cent. of perfectly vitrified brick with the least consumption of fuel. 2d. The brick must be durable under heavy traffic, and indestructible by weather or other natural influences. 3d. Sufficient smoothness to make traction easy and comparatively noiseless, yet not so smooth as to make it slippery for horses' feet. 4th. Good sanitary qualities. By this I mean that the brick with which a street is paved shall not absorb the filth which may find its way there, and thus become a breeding nest for the microbes of disease.

It is needless to do more than mention the necessity of annealing by allowing the kilns to cool slowly, on which depends, more than anything else, the toughness of the ware, enabling it to stand friction and blows without undue wear. Uniformity must not be overlooked; this prevents early failure in spots. In attempting to re-press we have not met with success, the product appearing checked and laminated.

Brick manufacturers have occasionally discussed the subject of the addition of sand (silica) to the clays to make the product more glassy and absorb less water. From a sanitary standpoint this is all right, but it has been argued pro and con on the increase of brittleness of the brick, and so far as I know neither party took into consideration the clays the others were using. This question is one that can be settled only by the expert upon examination of each particular clay deposit under controversy. The average of silica in clays used for vitrified ware is about 55% or 60%, though I have a record of one running 70% and another 48%. It is evident that, other things being left out of consideration, sand would certainly be detrimental to the one and materially aid the other. On the size of paving brick, local manufacturers find the regular building brick size (or nearly that) the best, though a few were tried of other sizes, experimentally perhaps, in some places.

The Iowa Brick Company uses a Frey-Schechler end-cut two-stream machine, having a capacity of 65,000 brick per day. The average output of the plant is 50,000 per day. The plant has six burning kilns, two Henney or down-draft, open-bottom kilns, and four Dewhirst closed bottom, down and horizontal draft combined. The capacity of the kilns average about 300,000, and they are 18 ft. wide inside. In this plant the average weight of coal per 1,000 brick is 1,600 to 1,700 lbs.

The McGorrish Brick Company uses a J. W. Penfield & Son end-cutting single stream machine; capacity 40,000, run to about 30,000 per day. This company has some round kilns, open bottom, of about 45,000 capacity each, running from 18 to 23 ft. in diameter. It also has several

TABLE OF PAVING BRICK TESTS, FROM CENTRAL IOWA [3]

No.	Manufacturer.	Location of Plant.	Product.	Machine.	Kiln.	Re-pre-sed.	Cap'city per day.	Size.	Dry weight.	Wet weight.	Incr'ase.	Pr. ct. increase.	Cr'shing sq. in.
									ounces.	ounces.	ounces.		
1	McGorrish Brick Mfg Co	South Des Moines, Ia	end cut	J. W. Penfield & Sons	Eudaly	No	40,000	3⅞ × 2⅜ × 8	94	94·5	·50	·53	none made
2	" " " "	" " " "	" "	"	"	"		3⅞ × 2⅜ × 8	96	96	·00	·00	"
3	" " " "	" " " "	" "	"	"	"		3⅞ × 2⅜ × 8	96	96·2	·20	·21	"
4	D Moines Brick Mfg Co.	3 m. W. of Des M'n's	" "	Chambers	"	Yes	120,000	3⅞ × 2⅜ × 8	99	99	·00	·00	"
5	" " " "	" " " "	" "	"	"	No		3⅞ × 2⅜ × 8	95·5	96	·50	·52	"
6	" " " "	" " " "	" "	"	"	"		3⅞ × 2⅜ × 8	96·5	96·75	·25	·26	"
7	Iowa Brick Co.	2½ m. N. of Des M'n's	" "	Frey Scheckler, two str'm	Henney	"	65,000	8⅛ × 3¾ × 2⅜	97·5	98	·50	·51	7,500 [3]
8	" " "	" " " " " "	" "	" "	"	"		8⅛ × 3¾ × 2⅜	102	102	·00	·00	
9	" " "	" " " " " "	" "	" "	D'w'hrst [1]	"		8⅛ × 3¾ × 2⅛	101·5	101·5	·00	·00	
10	" " "	" " " " " "	" "	" "	"	"		8⅛ × 3¾ × 2⅛	99·5	99·5	·00	·00	
11	Flint Brick Co	4 m. up D M'n's R'v'r	" "		Eudaly	"	45,000	8 × 3⅞ × 2¼	99	99	·00	·00	
12	" " "	" " "	" "		"	"		8 × 3⅞ × 2¼	97·5	98	·50	·51	
13	" " "	" " "	" "		"	"		8 × 3⅞ × 2¼	97	97·3	·30	·31	
14	Oskaloosa Pav. Br'ck Co	Oskaloosa, Ia.	" "			"	30,000	8 × 4 × 2⅛	98	98	·00	·00	
15	" " " "	" "	" "			"		8 × 4 × 2⅛	95.5	96	·50	·52	

[1] Patented by Simon Dewhirst, Des Moines, Ia. [2] Made for company and warranted to stand 7,500 per sq. in. [3] All tests are made from bricks taken from the yards by myself, and the measurements taken after burnt. All brick here mentioned are made from the carboniferous shales.

Eudaly open-bottom kilns, rectangular, with a capacity of about 200,000. The brick are placed 34 high, and stand up well under vitrifaction.

The Des Moines Brick Manufacturing Company uses two chambers of 60 000 capacity each, and Raymond repressers of 20,000 capacity per day. There is no call for repressed brick, and the company will not produce any this year unless for special orders. The repressed brick are a fine brick. They test well and present a very catchy appearance.

Des Moines and neighboring cities have had 7 or 8 years' experience in paving with brick. Forrest avenue has been paved for nearly 8 years with two-course brick. The brick used in this street was simply a hard burned brick, I think, with no particular effort to vitrify them, and consequently not of the quality the streets were paved with last year. Again, this city has had no wide wagon-tire ordinance until last year, and as this street was nearly level and paved the coal haulers and brick haulers have carried very heavy loads, so the street has had pretty hard wear. Again, the water companies and plumbers have time and again taken up places to make sewer and water connections and repairs, and in the face of all this the street is yet in good condition, the only roughness being where heavy traffic has settled it a few inches in longitudinal strips, and where parts have been removed. The brick themselves appear to be yet in pretty good condition, and but little worn.

Centre street and Sixteenth street, paved 3 or 4 years ago with vitrified brick, two course, are in almost perfect condition. Walnut, Locust and Court avenue, paved 2 years ago with one course brick on crushed rock and concrete foundation, is in absolutely perfect condition. These streets are through the very heart of the city, several miles in length, and subjected to the heaviest kind of traffic. In Adel, Boone and Council Bluffs two course paving gives highly satisfactory results.

TINA AMALGAMATION.

Written for the Engineering and Mining Journal by Vincente Pazos y Sacio.

It is strange that the method of "tina" amalgamation as used in South America, or any other in which iron is replaced by copper in the process of amalgamation, has not been tried in the United States.

If the "Huanchaca" method would be once tried, I am almost sure it would substitute very rapidly pan amalgamation in regions where fuel is scarce, and the ore to be amalgated is rich and rebellious.

As an instance of the superiority of the tina method, I will cite the "Ticapampa" works, where lixivation and amalgamation were carried on side by side, working on the same ore and under the same management. After some time lixivation was given up and all the ore is now treated by tina amalgamation.

In the "Huanchaca" mines, where this process originated, the results have always been so satisfactory that all the efforts of the company are toward its further improvement. Lately they have introduced electricity with marked success, and Sr. Balta is at present studying on the regeneration of the copper salts, all of which were formerly thrown away with the slimes.

The process, as used in Huanchaca, is so well known that it is unnecessary to repeat it, and I will limit myself to the comparison of the "pan" and "tina" processes, giving the advantages and disadvantages of the last, and trying to demonstrate them as I go on:

ADVANTAGES OF THE "TINA" OVER PANS.

1. It is not necessary to have so perfect a chloridizing roasting.
2. Less salt is required.
3. The gradual and steady change of the liquids from sulphates to chloride and subchloride of copper, concentrating as the amalgamation goes on.
4. Less horse power required.
5. The time of treatment shorter, not varying with the weight of the charge.
6. A larger percentage extracted.
7. Great purity of bullion.

DISADVANTAGES.

1. The tina is a more imperfect machine than the compact iron pan.
2. The quantity of mercury used has to be limited and its addition requires care and skill.
3. Metallic copper is more expensive than iron.

Almost all metallurgists state that the chlorides of Cu and metallic mercury are the principal reagents in the decomposition of the sulphides of silver, and seem to have overlooked the fact that copper sulphide, in the presence of a surface of metallic copper, at a temperature of 100° C., is as powerful, if not a more powerful reagent, for decomposing silver compounds. This reaction is so perfect that ores composed of not very complex sulphides of silver, with the addition of pyrites and a light roasting, can be amalgamated in four to five hours up to 60% without the use of salt. This constitutes one of the great advantages of the modified "Cazo," which is called at present the "Tina" system. The reaction which probably takes place is this:

1. $CuSo_4 + Ag_2S + Cu = Ag_2So_4 + CuS + Cu.$
2. $Ag_2So_4 + Cu + CuS = CuSo_4 + 2Ag + CuS.$

In the presence of steam, air and the sulphates of iron, the greater part of the CuS is converted into $CuSO_4$, the sulphide of copper thus getting more and more concentrated up to the end of the operation.

In places where salt is dear, fuel dear and the ores not very rebellious, full advantage can be taken of this reaction, as was done in Copiapo (Dorneyko—Tratado de Eusayes).

Sulphides.—When highly rebellious silver ores containing zinc and lead are to be amalgamated, then salt has to be used, preferably using about two-thirds of it in the roasting, but chloridizing has not to be carried to such an extent as for pan amalgamation, for the presence of the sulphates helps the decomposition of the silver compounds inside the tina; besides, from the moment the ore is charged, the $CuCl_2$, which immediately forms if there are any sulphates present, exerts a very powerful action on the silver compounds, decomposing also the blende and galena, action which is kept up by the Cu_2Cl_2, into which the $CuCl_2$ has been converted toward the end of the operation from the steady addition of metallic copper as it has been needed by the liquids in the tina. Although the Cu_2Cl_2 is not such a powerful chlorinizer as $CuCl_2$, its presence only is necessary toward the close of the amalgamation for its following properties: It chlorinizes the silver sulphides, blende and galena, without attacking the mercury, helps the excess of sodium chloride (NaCl) to dissolve the AgCl present, and it possesses a certain power to drive lead from the amalgam. This combination of causes, aided by a large surface of such a good precipitant of silver as is metallic copper and by a high temperature, makes the amalgamation very rapid and complete.

In the iron pan, from the nature of the machine, the reaction of the sulphates on metallic copper is eliminated at the beginning of the operation, and the presence of the sulphates, which are beneficial in the tina, is avoided in the pan, therefore the roasting has to be carried to a greater extent for pan amalgamation. The base chlorides, formed while the silver is being chloridized, not being necessary any longer when the chloride of silver is formed, are decomposed, thus introducing the use of salt which is wasted.

The behavior of the chlorides of copper in the pan and tina is pretty much the same; but in the first stage of the amalgamation, before the quicksilver is charged and while the higher are being reduced to lower salts, there is a strong reaction, by which the metallic iron precipitates copper, the iron going into solution; this reaction and the subsequent tendency of the iron to replace the copper of the liquid gives rise to the formation of iron salts, whose action on the silver compounds is much weaker than the corresponding copper ones. This is again another source of loss in the efficiency of the Na Cl used in pan amalgamation. The reverse takes place in the tina; no copper salts are destroyed and the liquids are strengthened by the iron oxide salts forming cupric and cuprous salts (the iron forming oxides and some sulphides); thus the beneficial salts are strengthened in the tina, while they are weakened in the pan during amalgamation.

The use of copper salts to produce important results cannot be avoided in amalgamation, and to employ a vessel made of iron as the pan for making these copper salts do their work is not philosophical, and the formation of copper amalgam, besides making impure amalgam, must give rise to mechanical loss, no matter how large be the excess of mercury used in the amalgamation.

The pan is principally a grinding machine and a precipitator of the Ag Cl which may be present in it, but it is a poor chloridizer. The tina is no grinding machine, but carries on chloridizing and precipitation with equal efficiency and in the order best adapted to a good amalgamation. The mercury, either in the pan or the tina, takes the silver precipitated, and its action in decomposing the compounds of silver present in the ore, I think, is insignificant in both machines.

All that has been said can be summed up as follows: That by using copper instead of iron in the process of amalgamation, nothing more is done than intensifying the affinities, making the same weight of reagents do more, quicker and better work, not only on the silver compounds but also on the mercury compounds which tend to form during amalgamation, eliminating at the same time all hurtful reactions.

In amalgamating free or docile ores, perhaps there is no advantage of copper over iron, but in treating base ores the difference is great, being the greater the baser be the ore amalgamated. Our "Cerro de Pasco" miners call iron a "cold" (frio) metal because its presencestops or retards the chlorination of the "circo" and sickens the mercury. On the contrary, they call copper a "hot" (caliente) metal, because it quickens the chlorination and attacks the mercury. Both extremes are bad, but the miner rather prefers his amalgamation "hot" than "cold": in the first case he can easily cure it, while in the second it is much more difficult or impossible to do so.

The addition of the mercury to the charge is the only part of the whole operation which requires a little practice and skill in the tina process. There is no danger of getting copper amalgam, for there is no nascent copper, but care must be taken when and in what proportions the mercury is added, especially in the first addition, for if a mistake is made in either case it will form a coating or mirror which destroys the benefit of the copper surface, substituting itself (Hg) as a reagent in the surface amalgamated, giving rise to loss.

The construction of the tina can be improved a great deal, but a copper pan cannot with advantage be substituted, for it would have a great deal of copper surface without friction exposed to be attacked by the mercury. In the actual tina even the side copper plates have the same objection, and it would be better to do away with them altogether, using in each charge a certain quantity of finely cemented copper, for the subdivided copper particles would present a larger surface and enter into solution much quicker than the same weight of metal drawn by the acids from a compact surface. Instead of using copper only, a certain quantity of tin and zinc amalgam can be used, saving copper and creating a galvanic action that helps amalgamation.

By reducing the copper surfaces to those that have scraping action as the shoes and dies, I think more mercury could be used in the charge than the present proportion.

While settling the amalgam the Cu_2Cl_2 present is converted into Cu_2OCl by the action of the cold water and air. This is lost at present, but efforts are being made to regenerate the Cu_2Cl_2 in an economic way.

I have no data of the pan and tina working on the same ore, but from the results obtained in this country (Peru), taking as a starting point an ore that has to be roasted eight hours in the reverberatory furnace the pan and tina will compare as follows:

Pan.	Tina.
Roasting 8 hours	6 hours.
Salt, 16 to 18%	10 to 12%
Time in pan, 8 hours	6 hours.
Time in settler, 4 hours	4 to 6 hours.
Mercury lost, ½ Ag. produced	¼ and less.
Silver lost, 25%	20%.
Fineness of bullion, 600 to 700	900+.

No time is lost with the amalgam taken from the tina, while the practice with amalgam from the pan is to charge it in a barrel, dilute it with a large excess of mercury, adding sulphuric acid and magistral and rotate the whole from 6 to 24 hours until the bullion has the necessary fineness of 993 to 997.

REFINING AMALGAM.

Lately I have been experimenting in refining impure amalgam and after an unsuccessful attempt I have been able to bring amalgam 400 and

600 fine up to 800+ not having brought it higher because I had not at hand the means of finding the true fineness, being guided simply by the grittiness of the samples that were taken from time to time.

The process I used was very simple, and as I don't know that it has been used before, it may be of some interest. A strong blast of air is passed through the impure amalgam, and the scum of oxidized copper and iron, which gradually forms on the surface, is taken up by a weak solution of H_2So_4 to which common salt is added from time to time. The process is much quickened if a weak electric current enough to overcome the resistance of the liquid on the mercury is used. The impurities in the amalgam immediately gather around the anodes and gradually pass into solution. If the current and acid solutions used are very weak, there is no danger of attacking the mercury, and the refining is very quick.

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Specially Reported for the "Engineering and Mining Journal."

SUPREME COURT OF MICHIGAN.

Care Required in Selecting Servants.—Where the work to be done requires only sufficient strength and a moderate degree of intelligence, the employer must, in selecting servants, exercise only that reasonable care which an ordinarily careful man exercises under similar circumstances, and not such care as will reduce the danger of accident to a minimum.—Jungnitsch vs. Michigan Malleable Iron Co., 63 Northwestern Reports, 296.

UNITED STATES CIRCUIT COURT OF APPEALS, NINTH CIRCUIT.

Valid Notice of Location.—A notice of location of a placer mining claim, which contains the name of the locators, the date of location, and a sufficient description, all as required by the statute, is not invalidated by the fact that the date is preceded by the words "dated on the ground," and such words are to be regarded as mere surplusage.—Preston vs. Hunter, 67 Federal Reports, 996.

SUPREME COURT OF MONTANA.

Insufficiency of Notice of Location of Claim.—Under the statutes, requiring a person making a location of a mining claim to file a declaratory statement thereof on oath, a statement which, on its face, appears to have been verified a year before the location of the mine, is insufficient, in the absence of proof that the affidavit was wrongly dated by mistake.—Berg vs. Keogel, 40 Pacific Reports, 605.

SUPREME COURT OF WISCONSIN.

Construction of Deed.—The fact that a deed reserved to the grantor a right of way across the northerly end of the parcel conveyed, for the purpose of repairing a mill race, and that the grantee was required to build an embankment on and across the northerly end of the premises, along the southeasterly side of the mill race, and keep it in repair, did not extend the description, as given by distances and measurements in the deed, so as to convey land to the bank of the mill race.—Gleason vs. Burroughs, 63 Northwestern Reports, 392.

SUPREME COURT OF KANSAS.

City Subscriptions to Mining and Prospecting Companies.—Chapter 114 of the laws of 1887, entitled "An act authorizing counties and incorporated cities of the second class to encourage the development of the coal, natural gas and other resources of their localities by subscribing to the stock of companies organized for such purposes," is unconstitutional and void. A subscription made by the city of Geneseo to the capital stock of a corporation organized for the purposes of prospecting for, developing and operating natural gas, oil, coal, salt and other minerals, is invalid, and although bonds are issued and accepted in payment for such capital stock, the Court holds, does not render the city a stockholder in the corporation. The city having issued its bonds to the corporation, which, it is alleged in the petition and admitted by the demurrer, are valid obligations of the city, may recover from the corporation the proceeds of such bonds illegally issued to pay the city's subscription to the capital stock of the company, and wrongfully converted by it to their own use.—City of Geneseo vs. Geneseo Natural Gas, Coal, Oil, Salt and Mineral Company, 40 Pacific Reports, 655.

Mining in Southern Russia.—The Russian government has granted to a French engineer a concession for working the iron ore deposits on the Kertsch peninsular in Southern Russia. It is said that a company will be organized and work undertaken on an extensive scale.

Basic Steel in Germany.—A statement recently issued shows that the production of basic steel in Germany, which began with a production of 50 tons in 1879, reached its maximum with an output of 2,344,754 tons in 1893, and has reached a total from first to last of 13,797,130 tons.

The New Steamship "St. Louis."—The Post Office Department has accepted the new steamship "St. Louis," of the American Line, as a first-class vessel for ocean mail service. The official trial was made in English waters, and on this trial the vessel ran a distance of 114 knots at an average speed of 20·14 knots an hour, which complies with the requirements of the law.

Sault Ste. Marie Canal Traffic.—The total freight passing through the Sault Ste. Marie canal this year from the opening of navigation up to August 31st was 8,858,148 tons (of 2,000 lbs.), of which 7,335 299 tons were eastbound, and 1,522,849 tons westbound freight. Among the chief items of eastbound freight were 68,770 tons of copper, 5,484,152 tons of iron ore, and 13,820 tons of building stone. In the item of iron ore there was an increase of 1,277,258 tons over the corresponding period last year. In westbound freight the largest items were, 1,063,476 tons of bituminous coal, and 195,638 tons of anthracite coal. This is a total of 1,260,114 tons of coal, and shows an increase of 36,964 tons over the corresponding period last year. This increase was wholly in bituminous coal, as the anthracite showed a considerable decrease.

The Direct Puddling of Iron.—Among the papers read at the recent meeting of the British Iron and Steel Institute was one by M. Emile Bonehill, Marchienne-au-Pont, Belgium, on "The Direct Puddling of Iron." Describing the process, the writer said it occurred to him that it would be advantageous to collect the metal tapped from the blast furnace in a reservoir, where it could be maintained in a fluid state, and from which it could subsequently be transferred to the puddling furnace. A reservoir was therefore built close to one of the blast furnaces at Hourpes sufficiently large to contain all the metal from a tapping, and constructed so that the metal might be kept in the same state of fluidity. For this purpose it was heated by means of a gas producer. It is placed lower than the base of the blast furnace, so that the metal can run into it directly, and it will hold 35 tons. Several openings are made in the wells, so that metal can be taken from different levels. After describing the operation of puddling, some information is given as to the economical results of the process. The metal flows directly from the blast furnace into the reservoir, and this results in an important saving of labor, as the pig moulders, weighers and wheelers are dispensed with. It further results in the obviation of accidents that occur when casting the pigs, causing the formation of wasters, which have to be returned to the blast-furnace. As the melted metal is taken from the reservoir by the puddlers themselves, a further economy of labor is obtained. On account of the operation being absolutely continuous in this system, two gangs of four puddlers have been arranged. With eight puddlers at least 12 metric tons of wrought iron are obtained, representing a minimum of 1,500 kilogrammes per man, or nearly double the production under the old process. The loss of metal is reduced to the least amount practically possible, and did not exceed 6%, while in ordinary work it amounted to 16%. He summarized the economy per ton of puddled iron as follows: Labor, $0.46; fuel, $1.50; waste, $0.86; total, $2.82. Other advantages possessed by the process were, that the space required was relatively small, the decrease in the amount of superintendence required, and its increased efficiency. The puddling is conducted at a high temperature, and the product is refined better, is very uniform, and is stronger than in the ordinary process. It works exceedingly well under the hammer, and the rolled bars have the appearance of wrought iron rather than that of puddled iron. When reheated the loss is much less, and the welding in a pile is perfect, the finished bars having a smooth surface and a good appearance.

PATENTS RELATING TO MINING AND METALLURGY.

United States.

The following is a list of the patents relating to mining, metallurgy and kindred subjects issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

TUESDAY, SEPTEMBER 3D, 1895.

545,163. Kiln. Henry H. Everhard, Massillon, O. Combination of vertical conduit with passages leading therefrom, a firebox having two separate sets of grate bars, two ash pits and an air conduit.

545,513. Apparatus for Rolling Seamless Metallic Tubes. Max Mannesmann, Remscheid, Germany. Combination of paracentric rolls, housing standards, a mandrel, a work gage provided with bifurcated jaws, a yoke, fastening devices for tightening the work gage to the yoke, and bolts with a spring screwed into the housing standards.

545,543. Brick Machine. Walter J. Soper, Chicago, Ill. Assignor to the Chicago Hydraulic Press Brick Company, same place. Combination of a table containing openings into which the clay is placed, a crosshead above and below the table carrying dies adapted to fit into the openings, means by which the crossheads are moved toward the table and automatically brought back to their normal position, and an automatic brake adapted to be operated by being brought into engagement with the crosshead that stops the crossheads in the latter position.

545,552. Apparatus for Burning Cement-making Materials and Process of Obtaining Carbon Dioxide. William R. Taylor, Rochester, England. Process consists in first heating the materials by direct contact with gaseous products of combustion, until the moisture, organic matter and the like are driven off, and the temperature is reached at which carbonic acid gas is given off and subsequently continuing the heating of the materials out of contact with the gaseous products of combustion during the formation of the carbonic acid gas.

545,570. Electric Coal or Rock Drill. Henry H. Bliss, Washington, D. C. Assignor to Joseph A. Jeffrey, Columbus, O. Combination of a field magnet, a rotary armature, an armature shaft, and a longitudinally movable driven shaft, both having bearings on the field magnet, and a driven wheel concentric with the latter shaft and mounted independently thereof in fixed relations with the field magnet.

545,596. Coal or Rock Drill. Benjamin A. Legg, Columbus, O. Assignor to the Lechner Manufacturing Company, same place. Combination of a rotary drill shaft, a rotary engine having a rotary piston concentric with the drill shaft, a driving wheel secured to the piston and a gear wheel driven thereby and connected to the drill shaft.

545,605. Manufacture of Flake Mica for Boiler Coverings, etc. Henry C. Michels, Toronto, Canada. Method consists in first opening the edges of the laminæ of the pieces, and then holding such pieces, so that the edges of laminæ are presented and subjected edgewise to the direct draft from a blast.

545,675. Apparatus for Tunneling Rock. Harry Byrne, Chicago, Ill. Combination of an upright supporting frame having a marginal formation corresponding with that of the tunnel, a series of traveling percussion channeling machines arranged to travel upon the outer surface of such frame, a flexible connection and means for operating the same attached to the entire series of machines to cause them to travel in unison.

545,718. Blast Furnace. William Penberthy, Denver, Colo. Combination of a water-jacket, a receptacle separate from the jacket, and provided with an air heating chamber and a water cooling chamber, means for supplying air to the air chamber of the receptacle and means for circulating the water of the jacket through the water chamber of the receptacle.

545,762. Dredger. Lindon W. Bates, Chicago, Ill. Combination of a boat; of groups of two or more ladders and appurtenances arranged side by side and with the ladders of each group rigidly connected; and means for raising and lowering the groups of ladders.

545,763. Power Hammer. Augustin Beaudry, Somerville, Mass. Combination of a frame having a crank, a crank-shaft, a guided, reciprocating hammer-head provided with tracks extending longitudinally thereof, a crank-rod coupled at one end to the crank and carrying at its other end shoes which bear on the respective tracks on the hammer-head, and means for pressing the shoes elastically against the tracks.

545,807. Conveying Apparatus. Thomas S. Miller, South Orange, N. J. Combination of a loading car, a fall-rope carrier, a support for the carrier, and deflecting mechanism whereby the hangers of the carrier are split apart as the carriage passes.

545,859. Apparatus for Carbureting Air. Franklin J. Gustine, New Orleans, La. Assignor by mesne assignments to Anna A. E. Bullin, same place. Combination of an air pump, and means for operating same, an air chamber, a carburetor, a gas chamber, a shunt air pipe connecting the air and gas chambers, and means for regulating the proportion of air passing through the pipe, a gas receiver, and means for automatically cutting off the supply of air and gas.

PERSONAL.

Mr. Wm. H. Brewer, mining engineer, of Atlanta, Ga., has gone to Michigan and Minnesota on professional business.

Prof. George W. Maynard leaves New York this week on a professional trip to Nova Scotia and Newfoundland, which will occupy his time for several weeks.

Mr. L. Cameron, late manager of the Dominion Mineral Company, at Sudbury, Ont., has been appointed manager of the Stratheyre mines, at Fairview, B. C.

Professor Judd, who succeeds the late Professor Huxley as dean of the Royal College of Science, London, England, has spent most of his life in geological study.

Mr. Raphael Pumpelly, ex-state geolgist of Michigan, and Prof. Henry Lloyd Smith, of Harvard, have gone to the Seine River gold district, Ontario, on professional business.

Mr. W. J. Hussey has resigned his position as professor of astronomy at Stanford University, in California, and will be stationed for some time at the Lick Observatory for the State University.

Mr. Percy L. Fearn, mining engineer, has just returned to New York from a visit to London. He leaves New York again this week on a professional trip through the Southern and Western States.

Mr. R M. Catlin, of Elko, Nev., sailed from San Francisco recently on his way to South Africa, where he has been offered an important position in mining work. His address will be at Johannesburg, South African Republic.

Mr. Hamilton Smith, mining engineer, of London, England, has returned to New York from his visit to Cripple Creek, Colo., which camp he considers extremely interesting in a professional way and of great financial possibilities.

Prof. N. A. Bibikov, the well-known mining engineer and metallurgist, has recently returned to New York from a professional trip on which he visited Idaho and some other Western states, and made examinations of a number of mining properties.

OBITUARY.

Thomas J. Houston, a well-known iron manufacturer, died at Chester, Pa., on September 2d, aged 59 years.

David Bevan, superintendent of Briggs' colliery, of the Lackawanna Iron and Coal Company, died suddenly at Scranton, Pa., on September 5th.

Mr. N. Leete, a well-known mining man, died on August 28th at his home in San Francisco, Cal., aged 72 years. In 1849 he went to California and at once went to the mines, remaining in that business until his death. His operations had not been confined to California, but had been conducted in Mexico and Central America with varying success.

Daniel S. Coxe, superintendent of the Delaware, Susquehanna & Schuykill Railroad, was killed at Drifton, Pa., on August 6th. While taking a ride on his private engine to the Drifton yards he was thrown to the ground and was so badly injured that he died in a few hours. He was a nephew of the late Eckley B. Coxe and of late had had practical charge of nearly all the interests controlled by the latter. He was 29 years old.

SOCIETIES AND TECHNICAL SCHOOLS.

Southern Mining Convention.—Mr. R. A. Dimmick, Secretary of the Committee of Arrangements for this convention, to be held October 1st, announces that several interesting reports and papers will be presented. The Committee has decided to request Dr. Eugene A. Smith, State Geologist of Alabama, to preside, but Dr. Smith has not yet accepted, so far as known.

British Association for the Advancement of Science.—The sixty-fifth annual meeting opened at Ipswich, September 10th. It is customary for the retiring president to introduce his successor, but Lord Salisbury, who was president last year, was unable to attend. Lord Kelvin, therefore, introduced the new president, Sir Douglas Galton. Sir Douglas started in to read a long address. He eulogized the late Professor Huxley, and then traced the history of the association from its inception, pointing out the benefits it had conferred upon students and the public in every branch of science. After reading three-quarters of the address Sir Douglas fainted. He soon recovered, but Sir John Evans read the rest of the address. Dr. Percy Frankland, professor of chemistry in Mason College, Birmingham, delivered a lecture on the work of Professor Pasteur, the French chemist, physicist and biologist. He traced Professor Pasteur's work and gave him a high meed of praise for all he has accomplished in his chosen field of work. The audience numbered 1,200 persons, including many distinguished scientific men. Among those present were Profs. Ira Remsen, of Johns Hopkins University, Baltimore, and Frederick Bedell, of Cornell University.

National Irrigation Congress.—This body will hold its annual meeting for 1895 at Albuquerque, N. M., September 16th to 20th. Delegates will be present from nearly every State in the Union. Papers will be read by eminent scientists, successful farmers and prominent statesmen. The programme has been arranged on practical lines, and all sessions will be open to the general public. The official programme provides for addresses by Gov. W. T. Thornton; Chairman W. E. Smythe, of Chicago; Judge J. S. Emery, National Lecturer; Hon. Clarke E. Carr, Ex-Gov. Lionel A. Sheldon, of Los Angeles; John E. Frost, Land Commissioner Atchison, Topeka & Santa Fe Railroad; E. R. Moses, President Interstate Irrigation Association; Hon. Fred. L. Alles, of Los Angeles; Ex Gov. L. Bradford Prince; Col. R. J. Hinton, Capt. W. A. Glassford, U. S. A., and Judge E. T. Kenney. The principal topics for discussion are: Colonization of arid lands; water supplies for semi-arid regions; fruit exchanges compared with commission system; irrigation in Missouri, Colorado, Mexico, New Mexico, and Canada; climatology of the arid region; the scientific aspect of irrigation; political problems of the arid regions; desert land laws, etc.

Northwest Miners' Association.—The following call has been issued by a committee headed by Messrs. A. P. Curry and L. K. Armstrong, and having its headquarters at Spokane, Wash.: The need for closer relations among the mining men of the Northwest has long been felt, both as to the protection of the mining interests with reference to legislation and for the purpose of more widely diffusing the knowledge of proper methods and means for more successful mining. The object of this association is not to form a mining exchange, but to consult together as mining men and men interested in mines and encourage the passage of such laws, both State and National, as will best subserve the mining industry. Want of organization has been felt in all the mining districts of the Northwest, and while isolated or individual effort often fails to successfully combat adversities which are met with, the combined interests and general knowledge to be acquired by co-operation has led to the present movement, which is the organization of what we are pleased to name the Northwest Miners' Association, and which should at once enlist the hearty support of all who are engaged, in whatever capacity, in mining. The field proposed to be covered by this organization, with the co-operation and endorsement of others engaged in mining in the territory, are the States of Washington, Idaho, Montana and Oregon, and the province of British Columbia. It is now proposed to hold the first general meeting in Spokane, October 2d and 3d of this year, at which time the permanent officers will be elected and committees named. We trust to be favored with the presence of all who will afford themselves the short vacation. We make this matter of as general publicity as possible and extend to everyone engaged, or in any way interested in mining, a hearty invitation to be present, informing the secretary of their intention. No credentials will be required at the first meeting, and all who attend will share alike in the business of the organization. Communications may be addressed L. K. Armstrong, temporary secretary, Spokane, Wash. By order of the committee.

INDUSTRIAL NOTES.

The rolling mill at Blandon, Pa., is being enlarged by the addition of a new heating furnace.

The Durham furnace at Milford, Pa., which has been idle for a long time, will go into blast very shortly.

The Chickies Iron Company, at Chickies, Pa., has started up on its No. 2 furnace, which has been for a long time idle.

H. K. Porter & Company, Pittsburg, manufacturers of light locomotives, recently gave their employees an advance of 10% in wages.

The Baltimore Malleable Iron & Steel Casting Company is putting up a new building 40 × 210 ft., and will put in the necessary machinery to double its present output.

The parties who recently leased the property of the Roanoke Iron Company, at Roanoke, Va., have organized a new company and begun repairs in preparation for starting up the furnace.

Negotiations are pending for the sale of the rail mill of the Troy Steel and Iron Company at Troy, N. Y., to the Ludlow Valve Company, whose works are now located at Indian Orchard, Mass.

The Hamilton Iron & Steel Company, of Hamilton, Ont., is pushing work on its new blast furnace, and expects to have it completed by January 1st, when it will secure the bonus voted by the city.

The Lukens Iron & Steel Company is building two new open hearth steel furnaces with a capacity of 40 tons each as an addition to its present works at Coatesville, Pa. The building provided for the furnaces is 105 × 115 ft.

The Abendroth & Root Manufacturing Company, of New York, have recently received important contracts for Root water-tube boilers for the Union Car Company, of Buffalo, N. Y., and the Reading Steam, Heat & Power Company, of Reading, Pa.

A dispatch from Birmingham, Ala., says that on September 9th the wages of all workmen in the rolling mills of that city outside of the Amalgamated Association were raised 10%; those of the men in the association were raised some time ago.

Messrs. Eells & George, the receivers of the Bucyrus Steam Shovel & Dredge Company, of South Milwaukee, Wis., will, it is stated, expect soon to complete the reorganization plan for the company, and will probably be discharged by the court in October.

R. C. Neal & Co., of Harrisburg, Pa., managers of the Hollidaysburg Iron Works, announce the early resumption of operations in the nail department of the plant. This department, which has been idle since 1887, will hereafter be run to its full capacity.

The M. C. Bullock Manufacturing Company of Chicago has recently delivered to Reed Bros., of Johannesburg, in the Transvaal, five diamond drills, and also a "Dauntless" drill, with all the necessary equipment for boring to a depth of 1,800 ft.

The Belle Isle Iron and Nail Works at Richmond, Va., have been for some time past running full double turn and are full of orders. Just at present they are somewhat embarrassed by the low water in the river, which makes it difficult to obtain sufficient power to run the works.

John Rowbotham, of Merchantville, N. J., has begun suit in the United States Circuit Court at Pittsburg, against the George P. Steele Iron Company and its officers to restrain them from an alleged infringement of the plaintiff's patent for the construction of sectional steam boilers.

The rolling mills at Pomeroy, Ohio, heretofore controlled by the Union Iron & Steel Company, will hereafter be operated by a separate company known as the Pomeroy Iron & Steel Company, which has been incorporated with $10[illegible],000 capital stock by Henry Wick and others of Youngstown.

The Portable Electric Lamp Company, Limited, has just been incorporated in London, England, and proposes, among other work, to manufacture and sell miners' safety lamps. The company is incorporated with a capital of $250,000 and will manufacture under the Morrison patents, which it has acquired.

On September 9th the Bethlehem Iron Company shipped 15 more turret plates to Admiral Virchowsky, at St. Petersburg, for Russian war vessels. The shipment is the sixth made to Russia. It weighed 205 tons. Forgings for 4-in. and 5-in. guns, weighing 18 tons, have been shipped to the Washington Navy Yard.

The Park & Falls Electric Railway Company, of Youngstown, O., is said to have acquired 5,000 acres of coal lands along the line of an electric road it has been constructing toward North Lima, thereby opening up for itself a field reached by no other transportation line. About 1,000 tons of coal per day are to be delivered into Youngstown, it is said.

The "South African Mining Journal" of recent date notes that the Langlaagte Gold Mining Company, in the Witwatersrand district, is putting up an air compressor supplied by the Gates Iron Works Company. The last named company has also recently erected a trimain steam stamp mill at the No. 2 shaft of the Robinson mine for the purpose of showing its efficiency in sampling and prospecting work.

Two of the limestone quarrying companies near Hollidaysburg, Pa., on September 10th, began operations on double turn, and will light up their quarries at night by the use of electricity. Six other companies will also soon give their employees increased work. Twelve hundred men are employed in these quarries. The limestone boom is due to the building of the large Carnegie furnaces at Pittsburg, and the activity in the iron business.

The firm of Fisher & Porter will be dissolved by mutual consent on September 30th, 1895. Mr. Albert Fisher will retain their present office, Room 1,025, Monadnock Block, Chicago, and will represent Wm. Todd & Co., of Youngstown, O., on their high grade and heavy duty engines, rolling mill and blast furnace machinery. Mr. H. F. J. Porter will retain the agency of the Bethlehem Iron Company, and will move to Room 1,433 Marquette Building, Chicago. These changes will occur October 1st.

Mr. E. A. Rix, of San Francisco, is to install for the Pioneer mine, near Toles, Cal., a power transmission plant using compressed air. The distance of transmission is 6½ miles and eventually 400 H. P. will be transmitted, the pipe line being laid for that capacity. At present 200 H. P. will be transmitted. The air will be heated at the point of application, bringing the power delivered up to the initial power. A 40-stamp mill will be operated, also rock crushers and drills. Mr. Rix is also building for the North Star mine a compound, pneumatic, direct-acting Corliss hoist, with a reheater between the high and low-pressure cylinders.

The Williams Manufacturing Company, of Kalamazoo, Mich., has just shipped to the Lake Superior Powder Company nearly half a mile of

wooden tubing, the largest size being 4 ft. 6 in. in diameter and made of 3-in. white pine. The company also recently completed an order for large tanks made out of Washington red cedar, to go into a tannery at Allegheny City, Pa The same week a quantity of tanks, made out of 2 in. cedar for a distilling company in Fayette County, Pa., were shipped and the company is now building a quantity of tanks for a large chemical company that will take 40,000 ft. of 4-in. Louisiana cypress. This company recently completed a building that it is in hopes will give ample room to handle the increasing business, the floor space being about 16,000 sq. ft. It is putting in some very expensive machines, entirely new, made especially for this business.

The six steel canal boats, whose departure from Lorain, O., with a cargo of rails from the Johnson Steel Works was noted some weeks ago, made a successful trip to New York, where they were loaded with other freight, and are now on their return trip. The experiment has been sufficiently successful to warrant a continued trial, and while the season is approaching its close, it is very probable that additions will be made to the fleet in time for next season's lake and canal work. These boats were built at the Globe Iron Works, of Cleveland, for the Cleveland Steel Canal Boat Company, and are specially equipped for both lake and canal service. They measure 98 ft. in length, 18 ft. in width and 10 ft. depth of hold. Each boat has a capacity of about 250 tons, and draws when loaded 6 ft. of water. The propeller which towed the boats on the canal is fitted with a fore-and-aft compound condensing engine, having cylinders 10 and 18 in., and 16-in. stroke, and one Scotch boiler. The engine is 120 H. P., and is capable of towing the flotilla along at about six miles an hour in deep water.

The investigation as to the selling price of sheet iron during the past 60 days began in the rooms of the Manufacturers' Association in Pittsburg, September 10th. President Garland, Secretary Killgallon and Richard Morgan were present to go over the manufacturers' statements on the selling price of the product of their plants during the months of July and August. An average of these prices fixes the wages of the men for 60 days from September 1st, the sliding scale being based on what sheets sold at during that period. As prices of all kinds of iron and steel have been rapidly advancing during the past few weeks, the workers were anticipating an advance in wages under the new sliding scale. In this, however, they will be disappointed. Before the boom in the iron industry contracts were made at low figures. These contracts have been filled during the months of July and August, but the average selling price will not go above the base of the Amalgamated Association scale and prospects for an advance in wages are anything but good. There were some encouraging features developed in the conference. Prices have advanced on material to be delivered the next 60 days and when the next average is taken there will undoubtedly be a decided advance in the pay of the sheet iron workers. This will take effect on November 1st.

TRADE CATALOGUES.

A small catalogue, or rather memorandum, with the title "Jeffrey Coal Mining Machinery," has just been issued by the Jeffrey Manufacturing Company, of Columbus, O. It is a supplement to the complete catalogue for 1895 issued by the company, and contains illustrations of the Jeffrey coal drills, chain coal cutters, electric hoists, electric locomotives and trucks, and also some small illustrations of the Jeffrey elevating machinery. Its object is to call attention to the arrangements made by the company to furnish complete equipments for coal mines. As usual with this company's catalogues it is very tastefully printed and engraved.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" of what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning goods of any kind, and forward them catalogues and discounts of manufacturers in each line.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, nor have they any pecuniary interest in buying or selling goods of any kind.

GENERAL MINING NEWS.

The American Exploration Company, of New York City, has been incorporated to develop mining properties. The capital is $50,000. Among the directors are W. H. Nichols, Wm. Lieberoth, E. Thalman, of New York City.

The account of new oil well work in the month of August as given by the "Derrick" is as follows: In the New York, Pennsylvania and West Virginia fields, 766 wells with a daily production of 11,798 bbls. were completed during the month, and 171 dry holes were reported; at the close of the month there were 825 wells in progress. In the Buckeye field, in Ohio, 519 new wells with a production of 10,025 bbls. were opened, 48 dry holes were reported, and 695 new wells were in progress. The Southeastern Ohio field shows a total of 48 new wells with 406 bbls. production; there were 14 dry holes and 71 new wells upon which work is going on. In the Indiana field 140 new wells with a production of 2,760 bbls. are noted, besides 23 dry holes. At the close of the month there were 179 new wells under the drill.

ALASKA.

Alaska Treadwell Gold Mining Company.—This company reports the clean-up for the month of August as follows: Period since last return, 31 days; bullion shipment, $83,587; ore milled, 23,806 tons; sulphurets treated, 417 tons; of bullion there came from sulphurets, $28,420. The gross expenses for the month are not figured out yet.

ARIZONA.

Gila County.

Old Dominion Copper Company.—A dispatch from Globe says that without waiting for the railroad to be completed through from the reservation line to that place, the smelters and mines of this company will resume operation. Coke for the furnaces is now on the road, having been shipped from Pocahontas, Va., some weeks ago. It is said about $350,000 worth of machinery, comprising concentrators, leaching plant, hoists, etc., has been purchased. The plant will be nearly double the old capacity. All will start up as soon as the machinery can be placed in position. Hauling will be done from Thomas, where coke and coal bins are being put in.

Pima County.

Oro Blanco District.—A bond of the Austerlitz Gold Mining Company to the National Mining and Development Company, consideration $80,000; and bond from Albert Sheltenbrand for the Sheltenbrand group of mines, consideration $60,000, were filed for record at Tucson last week. The Austerlitz group of miaes are the Austerlitz, Pararell, Suggestion and Continuance. All are located in the Oro Blanco district.

Yuma County.

Harquahala Gold Mining Company, Limited.—The possible abandonment of the Arizona property, which has been discussed for some time now, appears to be certain since the directors on September 2d issued the following circular from the London office: The directors beg leave to inform the shareholders that they have acquired an option, having about two months to run, to purchase upon favorable terms two leases, containing about 27 acres, situated about 1,000 ft. south of Hannan's Reward Claim, Western Australia. Developments have been in progress for the last month, and will be vigorously continued by the company. The company has sufficient funds at its command to prove the value of the claims and purchase them if considered desirable.

CALIFORNIA.

Nevada County.

(From Our Special Correspondent.)

Ragon.—Messrs. Poorman & Hastings, of San Francisco, have purchased this mine for $10,000, and will commence development work on a large scale. A large quartz vein and a gravel channel run through the property.

Placer County.

Mayflower Gravel Mining Company.—This company last week shipped bullion valued at $2,900.

Santa Barbara County.

(From Our Special Correspondent.)

Alcatraz Asphaltum Mining Company.—This company has a large refinery at Carpenteria with improved machinery. It is operated by a large force of men and is lighted by electricity. The output from the mine at Carpenteria and the La Paera mine, 10 miles west of Santa Barbara, is about 1,500 tons per month. Shipments are being made to Oregon, Washington, San Francisco, Denver and New York.

San Benito County.

(From Our Special Correspondent.)

New Idria Quicksilver Mining Company.—At this mine 50 men are now employed. The output is 85 flasks per month. A 60-ton furnace will be erected in the spring.

San Bernardino County.

(From Our Special Correspondent.)

Altuma.—This mine, in the Morongo District, has run three tunnels striking some rich ore. A large force of men is at work building a road to the mine.

Pinther, Price & Burnap Mining and Milling Company.—This company, with a paid up capital of $2,000,000, owns the San Bernardino, Two Gilberts, Ellery, Sophia Pinther, Going, Price and other mines in the vicinity of Twenty-nine Palms, within 10 miles of the Desert Queen Mine. Arrangements are being made to bring water on the properties when the mills purchased will be erected and work commenced. There are several hundred tons of rich ore now on the dump.

Siskiyou County.

(From Our Special Correspondent.)

Yreka Gold Mining Company.—This company has filed articles of incorporation. Capital $150,000, all subscribed. The directors are; President, E. S. Harrison; vice-president, V. E. Zabala; secretary, G. M. Foote, N. A. Bradley and H. E. Abbott. The company owns the Spencer mine, on Humbug Creek near Yreka, and has commenced development work.

COLORADO.

The following mineral surveys were approved by the United States surveyor general for Colorado during the week ending August 31, 1895: Survey No. 9,561, Pueblo, First National; 9,630, Pueblo, St. Louis; 9,568, Durango, Humming Bird; 9,601, Pueblo, Adelaide; 9,592, Pueblo, Josie B., Pleasant View, Black Diamond and Little Gem lodes; 9.574, Pueblo, Egg, 9,600, Pueblo, Dalphna; 9,617, Pueblo, Summit mill site; 9,657, Pueblo, Willamette; 9,460, Pueblo, Ptarmigan; 9,616, Leadville Masonic placer; 9 551, Leadville, Rose, B. and S. No. 1, and B. and S. No. 2 lodes; 9,659, Pueblo, Lady Emma; 9,581, Leadville, Brown, amended work (G. L. O.); 8,283, Pueblo, Lottie; 512 American Leadville, Shamus O'Brien; 7,507, Pueblo, Doubtful and Anna Lee lodes (affidavit $500 expenditure issued); 8,932, Pueblo, Franklin; 9,546, Pueblo, Ontario et al.; 9,484, Pueblo, Trilby; 9,097, Pueblo, Excelsior; 9,500, Pueblo, Custer.

The annual statement of the Denver & Rio Grande Railroad Company for the fiscal year ending June 30th, throws interesting light on the financial condition of Colorado. Changes in the showing from the preceding fiscal year are as follows: Freight earnings, increase, $290,742; passenger earnings, increase, $8,086; miscellaneous earnings, increase, $141,969; total receipts, increase, $440.797, or 6¾%; net earnings, increase, $442.136, or 16¾%. Total operating expenses increased $18,661, or less than one-half of 1%.

President Jeffery submits the following comments on the year's results: On June 30th, 1893, when the great financial and industrial crisis came upon us, the current liabilities of your company were $1,868,873, and the excess of current assets was $1,351,229. Your directors, therefore, call attention to the fact that during two years of business depression the liabilities of your company have been reduced about $436,000, and the excess of assets has been increased more than $640,000, although a year ago the value of securities in the treasury and the special renewal fund were, for prudential reasons, reduced in the account to the extent of $151,379.

In the report submitted for the year ended June 30th, 1893, your directors stated that the value of equipment had been written down $895,870, and general profit and loss account had been charged with that amount. It was then stated that it was prudent to still further reduce the book value of equipment, but your directors refrained from acting upon the matter a year ago. It is now deemed wise to pursue this policy in making up the accounts for the year that has just closed, and $1,000,000 has therefore been taken from the value of equipment and charged to general profit and loss account. The accounts of your company show, after doing this, a balance to credit of profit and loss of $2,130,193, being $137,523 more than the excess of current assets over current liabilities.

During the last five years the amounts of unpaid vouchers at the end of each fiscal year were as follows: 1891, $927,074; 1892, $522,332; 1893, $462,919; 1894, $297,951; 1895, $145,317; which shows that your company is now in the position of paying promptly each month the bills for labor and material incurred during the month preceding.

The balance-sheet shows decrease of $782,166 in total assets and of $303,233 in total liabilities, making increase in book surplus of $782,166. Among the liabilities, the balance-sheet shows the following note worthy decreases from June 30, 1894: Loans payable, December, $50,000; bills payable, December, $100,000; vouchers, December, $152,633.

Colorado Fuel and Iron Company.—In his report for the year ending June 30, 1895, President Osgood says: "The company has earned all of its fixed charges, including bond interest, taxes and sinking funds, the full dividend of 8% on its $2,000,000 preferred stock, and a surplus of $4,874. The production of coal increased 141,649 tons and of coke 65,993 tons over the preceding year; all of this increase and more was used by the company, mainly at the steel works, and was charged out at cost. The principal items of increase in the iron department were: Pig iron, 37,857 tons; steel rails, 25,308 tons; spikes, 23,238 kegs; merchant iron, 5,477 tons; angle bars, 3,869 tons, and iron ore, 103,440 tons.

The net earnings carried to the credit of income account were $678,450, an increase over the preceding year of $116,341. The surplus over fixed charges and interest on floating debt amounts to $256,914, against which has been charged $92,040 for sinking funds for coal and iron mined during the year, leaving a net surplus of $164,874, which would be sufficient to provide for a dividend of 8% on the preferred stock and leave a balance of $4,874. As no dividend has yet been declared on preferred stock, the net surplus has been carried forward, making the balance of income account $242,921, or a little more than sufficient for the cumulative dividends due on preferred stock to June 30th, 1895, being 12%, or one year and six months' dividend. During the year the bonded indebtedness of the company has been reduced $52,000 by the purchase of 52 Colorado Coal and Iron Company bonds for the sinking fund. Since the close of the business year the company effected a sale of $2,000,000 of its general mortgage bonds. The "cash liabilities" have increased during the year $15,925, and the "cash and convertible assets" have increased $179,703, principally in customers' accounts, manufactured stocks and supplies. The sale of general mortgage bonds above referred to is not shown in the Auditor's re-

port, as the bonds were not delivered and paid for until August 1st, 1895. Since that date all bond loans and other floating debt, including preferred stock dividend scrip, have been paid and the company is now in good financial condition. As already stated, the preferred stock dixidend for the year and all arrears of preferred dividends have been earned; the improved financial condition of the company will enable it to resume the payment of preferred stock dividends at an early date, but in view of the greatly increased iron business and consequent necessity for enlargements and improvements at the steel works, and the amount of cash capital which will be required to carry the increased stocks of manufactured materials and supplies and customers' accounts, the board of directors have deemed it prudent to postpone the declaration of a dividend until it can be determined what amount will be absorbed for the requirements above referred to. It seems probable that in the near future the profits of the iron department will be commensurate with large capital, nearly $3,000,000, invested in this branch of our business. We can produce iron and steel at prices which are attracting the attention of Eastern manufacturers.

Clear Creek County.

Anna Arnold.—A large body of rich quartz is reported to have been encountered in the Anna Arnold tunnel, owned by Smith, Hilton & Co.

Paragon Mining Company.—The Ophir group of claims, situated on Yankee Hill, has been leased and bonded by a party of Colorado Springs mining men for $25,000. Two tests of the ore from the 16-ft. vein recently encountered in the Johnson crosscut tunnel on Fall River returned $20.60 and $26.80 per ton. The ore body is 8 ft. in width. Work is being rapidly driven forward on this vein and the main cross-cut tunnel is also being driven ahead to tap the Homestake vein. These properties are owned by the Paragon Mining Company, of Denver.

(From our Special Correspondent.)

Crown Point.—The shaft is being sunk 100 ft. and additional drifts will then be run both ways. The pay streak in the bottom of the shaft is holding out to 5 ft. The management expects to ship 1,000 tons to the concentrating mills at Idaho Springs during September and claim that they will be shipping 100 tons a day by October 10th. The indications are favorable.

Franklin.—While drifting in one of the lower levels an ore chute was encountered and those in charge are taking out considerable smelting ore. The returns show that it is running 25% lead, 94 oz. silver and 0·08 oz. in gold.

Freeland.—The extension from this mine has recently been started up, and at a depth of about 50 ft., the same mineral is showing as appeared in the old Freeland property which was worked by John W. Mackay, of Comstock fame, some years ago. The returns on a shipment of ore to the smelter shows it to run 24% lead, 1½ oz. gold, and 49 oz. silver. This streak is now 1 ft. wide.

Gem.—This mine and the extension has been leased to W. E. Renshaw, of Denver, who is organizing a company to work the properties on an extensive scale.

Placer Workings.—Among those carrying on this work is L. Bradford Prince, ex-Governor of New Mexico. He has taken out all of the crude machinery, and is preparing to carry on hydraulic mining in the California way. Mr. Prince has two miles of placer ground on Clear Creek, just below Idaho Springs, and expects to begin active work by October 1st. The flume is 6,000 ft. long, 5 ft. wide and 3 ft. deep. The water will enter a receiving tank at the mouth of the flume 85 ft. above the placer ground. Two 16-in. pipes will carry the water direct from the receiving tank to the gravel. An elevator will carry the gravel automatically up 10 ft. to the sluicing boxes above. The ground at the upper end will be washed for a couple of months, and in the meantime the flume will be extended to the lower end ready for washing in the early spring.

Stanley.—The shaft will be sunk another 500 ft. and more drifts will be run. In the meantime the drifts above will be extended into the hill. In the road level, which is now in 2,500 ft., the 3 ft. of solid mineral reported a few weeks ago is holding out and the values continue to run several hundred dollars to the ton.

Traction.—The shaft on this property has just been sunk another 100 ft. and a run of 15 tons of ore from the bottom brought $120 a ton.

Eagle County.

Since January 1st, 245 cars of ore have been shipped from Red Cliff.

The concentrator at Holy Cross City is working steadily now, and ore shipments via Red Cliff are regular.

Alligator.—In Eagle River canyon work is being pushed on the Alligator and some good gold talc is being taken out. A great deal of decomposed quartz is also found, and the owners are getting a nice shipment together once more.

Black Tiger.—At this mine Joseph Miller & Company have just finished a 100-ft. contract, crosscutting from one tunnel to another. Some small seams of ore were encountered, and also considerable decomposed matter highly mineralized.

Belden.—At present very little is being done at the Belden, only a few men being at work. The Eagle Bird is working hard once more to regain the loss of several months by water. Shipments will be regular from this time on. The Crown Point, St. Joe and others near by are working and taking out ore.

Eighty and Little Pence.—A two years' lease has been taken by John J. Hill, of Leadville, and Seymour Coleman, of Chicago, on the Eighty mine, Little Pence No. 1, and Little Pence No. 2, owned by H. W. Smith, J. W. Baldwin, both of Red Cliff, and W. H. Evans, of Leadville. These properties lie on South Battle mountain, adjoining Red Cliff townsite. J. J. Hill has re-located a claim or a fractional claim between those just leased, and work has begun on a tunnel 7 by 8 ft. in the clear. The terms of the lease stipulate that "after 60 days the Hill company must work on the tunnel continuously, a cessation of work for 10 days forfeiting the lease." The Hill company is also given a perpetual right of way through the ground now leased even if the bond is not taken up. A company will be organized to push the work many hundreds of feet into Battle mountain, not only at the new workings but also at the John Joe Hill tunnel, some 2,000 ft. higher up the mountain, where work was started a year ago. Sixteen new claims have just been located near the twenty-eight that were located last year, and some road work done during the past two weeks.

Fulford Mining District.—According to late advices from Red Cliff, the Fulford district is steadily forging ahead. Hanlon, Burgess & Williams are taking out high-grade ore, sorting and sacking it, getting ready for a shipment of 100 sacks, which will be made next week. The adjoining properties are being worked, especially the Gold Dust and Cord. The ore is very high-grade gold.

El Paso County—Cripple Creek District.

(From Our Special Correspondent.)

Anaconda Mining Company. — This company's properties are improving, and shipments are now in order again, after a cessation of nearly 4 weeks. All the ore houses and bins have been full, awaiting transportation on the Florence & Cripple Creek Railroad.

C. O. D.—This mine, owned by the Rebecca Gold Company, of Paris, is pushing work on the erection of the new machinery, which, it is expected, will all be in place next week. The hoisting drum is one of the largest in the camp, having a diameter of 7 ft.

Deerhorn.—This property, on Globe Hill, owned and worked by the French Syndicate under the management of Mr. Lavagnino, shows at the 375-ft. level large bodies of low grade ore, associated with gypsum. At present the ore body seems to be more of a concentrating than an amalgamating proposition. Two sets of lessees are at work on surface and doing well; one set will clear $2,500 per man for the two months, paying 30% royalties. A nest of $100 ore was found from surface; although the place was supposed to be worked out on two different occasions, the first time from surface, and the second time from below with a raise.

Doctor.—The present surface showing on this property on Raven Hill is very good. The shoot of ore was found when excavating for a steam hoist, and it was first worked as an open cut; now it is worked by a tunnel with entrance in the shaft house. The present depth is less than 30 ft. The vein is fully 4½ ft., 3 ft. of which yields value of from 4 to 5 oz., without sorting. Fourteen inches of the hanging wall part of the vein is very rich. Not a piece but shows large cubes (not wires or filaments) of gold. The lowest assay across the 14-in. pay streak has been $8,000. The owners, Messrs. Cone & Robinson, had spent about $25,000 and three years' work in developing this and other claims in the camp and had a standing offer of $150,000 cash for the Doctor claim at any time before the rich shoot was found.

Elizabeth Cooper.—This property, which lies directly west of the Doctor and owned by the Nugget Company, is now being vigorously worked by lessees in search of the Doctor vein. This claim is bonded for $75,000, which expires in January next.

Elkton.—The north drift at the 3d level is within 25 ft. of the Katherine line, and shows better and richer ore than at any period since the commencement. The line of oxidation or superficial alteration of the ore deposit has been passed, and the ore is a telluride of gold. The pay-streak is about 18 in. wide.

Gold King.—This property, on Gold Hill, being worked on lease, is again in ore after a month's working with water and a barren spot of 25 ft. The ore shoot dips in the hill much faster than anticipated.

Mary McKinney.—The shaft is being sunk, and is now 46 ft. below the 100-ft. level, it being the intention of the lessees to sink an additional 20 ft. and start levels. The vein in the shaft has improved, and the water is easily kept out by buckets.

Nugget Mining Company.—The Katherine, owned by this company, is being developed in good style and with good results. The west crosscut at the 100 ft. level has been extended 80 ft., and it looks as if a new vein would be encountered shortly, as the mud seams assay $22 per ton, and the rock is much jointed and largely in blocks. The last shipment of first-class ore yielded 5·48 oz., and the second grade (54 tons) 1·90 oz. The waste dump is leased to parties who pay 15% royalty.

Raven Mining Company.—The north drift from the bottom of the winze in the lower tunnel has been driven 24 ft., the pay streak being 2½ ft. wide of a good grade shipping ore. The south drift has been extended 27 ft. and shows even better ore than the north drift.

Summit.—At the 150-ft. level three winzes are being sunk and the ore body holds out well, yielding mineral of from $40 to $60 per ton. The shaft has been sunk 200 ft. Should the ore body continue to hold its value, the shaft will be sunk 100 ft. deeper, and development work generally will be pushed. At present only 18 men are employed.

Walter.—This property, owned jointly and in equal proportions by the Elkton Company and two Denver gentlemen, but managed by the Elkton Company, has pierced Raven Hill from the Katherine north end, 412 ft., and during the entire distance only one barren spot of 42 ft. in length was encountered. Only a very small portion, not one-twentieth has been stoped.

Fremont County.

The American Cyanide Gold and Silver Extraction Company has leased the United States Economic Reduction Works at Florence, which will be changed from the chlorination process to cyanide dioxide, the necessary machinery, tanks, etc., having been ordered some days ago. Jerome B. Frank, of Denver, will have the active management of the works.

Gilpin County.

Perigo.—This mime, in the Independence district, resumed work last week after a shut-down of about two months. A force of 24 men was put on, the intention being to drive the lower tunnel. This property has been closed during the summer, owing to negotiations which have turned out successfully.

Hinsdale County.

Black Swan.—Work on this mine in Burrows Park is being steadily pushed ahead, and some high grade ore is being encountered, says the Lake City "Phonograph." Work on the Bald Eagle will soon be under way. The Bald Eagle mine is located near the outlet of Silver Creek and in the same belt as the Black Swan.

Czar.—Work on the Czar and Julia mines at Capitol City is being pushed as rapidly as possible. The properties are lead, silver and gold.

Garlock.—This mine, located on Hotchkiss Mountain, was bonded and leased last week by Eastern parties, and work is expected to begin on the property in a short time.

Ocean Wave.—This mine is being worked in an extensive manner. About 20 men are employed, and regular shipments were commenced last week.

Swem Tramway Company.—Thomas Ford will take charge of and put a force of men to work on the group of mines called the Avalanche, Zetta, Alpine Pilot and the Lulu, recently leased by the Swem Tramway Company, and located in the Alpine country.

Vermont.—A shipment of ore was made from this mine last week. The property is under bond and lease to James Ray and Preston Hix.

Lake County—Leadville.

(From Our Special Correspondent.)

Arena Mining Company.—New York capitalists are at the head of this company. In order to catch the ore body that was found dipping in the old shaft, a new shaft has been started on the Iszard property.

Bison.—These people have a good lead ore body, but at present are producing only iron ore Shipments have been increased and 100 tons a day of iron are now being handled.

Bohn's New Shaft.—The great success met with by Major Bohn in the Bohn property has induced him to extend his operations and he is sending down a new shaft on the Chrysolite territory not far from the Chrysolite No. 6 shaft, so famous in early days. The existence of rich mineral under the quartzite in surrounding workings leads to the belief that Major Bohn will be successful.

Chip.—David May, of Denver, purchased this property recently and has commenced active development work. The Chip is a city property and has a big iron ore chute that can be shipped from at once.

Queen Group.—A syndicate is being organized to work this property, which has been idle for some time. The Queen, Butterfly and Lulu lodes are included in the group. There is a distinct iron outcrop all along this section.

Smith-Moffat Group.—During the past month development work has opened up large bodies of ore. The output of the group for August was as follows: Wolftone, 987 tons copper sulphides and 2,983 tons iron; Maid of Erin, 317 tons sulphides; Lower Henriette, 2,727 tons carbonate; Denison lease, 89 tons sulphide; Evans' lease, 300 tons iron; Adams' lease, 434 tons sulphide; Grey Eagle and Pocahontas, 676 tons carbonate; Bon Air and Starr, 1,300 tons carbonate.

White Cap Mining Company.—The property has been working under lease to Jas. Shinn. He and sub-lessees have been shipping steadily. The shaft house caught fire Sunday from sparks from the blacksmith furnace and all surface property was destroyed. The flames also burned down the

shaft some distance. Loss estimated at $6,000; insurance, $4,500.

Ouray County.

(From Our Special Correspondent.)

Bachelor.—In this property they have just broken into a rich vein of silver ore in the lower level. The vein is 3 ft. wide at the breast and the ore is said to be the richest yet discovered in that famous property.

Nervissa.—The new tunnel at this point has been started and is already in good ore. Shipments have not yet begun.

Octoroon.—A new tunnel has been started on this property and is being pushed as rapidly as possible.

Pony Express.—A force of 14 men is at work upon good ore in this property. Seven carloads were shipped last week.

San Juan Chief.—Recent development work at this point has shown up several large bodies of ore in audition to those already under development, as a consequence of which it has been found necessary to increase the milling capacity. A large force of carpenters is now at work erecting a capacious addition to the tank room, and several new tanks will be put in at the earliest possible date. The new chloridizing process has proved a success.

U. S. Depository.—A few men are at work on this property running a crosscut in contact, with very good indications. Machine drills are being used.

San Juan County.

Some good strikes have recently been made in Maggie gulch, near Eureka, about 8 miles above Silverton, Colo. Assays run high in gold and silver. Fifty claims have been staked in the last month. On Bear creek, about 15 miles southeast of Silverton, a score of rich strikes have been made this season.

Shipments of crude ore and concentrates from Silverton now run 6,000 tons per month. In addition, the Silverton smelter is treating 125 to 140 tons daily, the Crooke smelter, on North Star ore, 15 to 20, and the San Juan Chief mill 25 to 30. The Victoria Consolidated mine, near Silverton, managed by Thomas H. Kane, is turning out about 1,000 tons of crude ore monthly. Three more concentrating mills will be in operation there shortly, the Silver Wing of 100 tons capacity, the Harrison, at Gladstone, of 25, and the Briggs mill in Eureka gulch, of 20 tons. The capacities of E. Mr. G. Stoiber's Silver Lake mines and mills are to be increased to 2,000 tons daily.

IDAHO.

Idaho County.

E. B. True, of the Rescue and Knott Mines at Warrens, intends putting a steam pump on Secesh Meadows and prospecting for the pay streak which is believed to exist there. His scene of operations will be on the east side of the meadows below Long gulch. Good prospects have been found in the gravel at that point, but bedrock has never been reached on account of depth and water.

Latah County.

Rodgers Mica Mining Company.—This company, whose office is at Cleveland, O., with property near Moscow, Idaho, will begin operations at the mines shortly. The product will be shipped direct to Cleveland. Capt. E. E. Rodgers is superintendent.

Silver White Mica Mining Company.—This company, of which Captain Rodgers is president and manager, will resume operations in a few days running a tunnel to the vein. The company expects to continue work all winter.

Lemhi County.

Idaho Yellow Jacket Gold Mining Company.—Prof. N. A. Bibikov, who has been about two months in the Yellow Jacket mining district, examining principally the property of this company, reports to us that this property covers about 600 acres, lode claims, placer claims and mill sites. The company has on its ground a 40-stamp mill and 20 stamps more will be set to work in a very short time. There was one disadvantage with the district, that of communication. Until now every pound of machinery and produce had to be transported on pack mules, but a good wagon road has just been completed from Salmon City, Idaho, to Yellow Jacket. Among the recent improvements made by the company on its property, including the mill, is a flume for water which will give from 400 to 450 H. P. This water power will be utilized in milling the ore and running a saw mill. The company has an immense amount of timber on its property. The company has been working regularly for years a deposit which, Professor Bibikov thinks, is a surface deposit in a pre-existing basin, and its thickness is from 20 to 60 ft. The amount of ore that the company can work by opencuts he calculates not very far from 1,000,000 tons. While he was on the company's property some three or four regular lodes were developed, and one of them, running almost from the surface, averaged up to $60, two-thirds being in gold, and the balance in silver. Other large quartz veins, one forming the contact between talcslate and porphyry, 20 to 25 ft. wide, averaged about $6 or $7 in gold from the surface with an occasional high assay, so that really the mine proper, or rather the lode mining, has not been touched yet. However, with new developments attention will be paid to the lodes and the mining industry here will then give employment to many people. In going over two or three miles of the property as far as available to the company, besides making some other locations, there were many outcrops of gold-bearing quartz. The general formation in the Yellow Jacket district seems to be principally talc slate micaceous slate, serpentine and quartzite, with occasional outcrops of magnesian limestone, and it is cut in almost every direction by dikes and sheets of porphyry, trachyte and other eruptive rocks. Within a short distance, or rather around the Yellow Jacket property, there are in three or four places gold placers; one of them a little south of Yellow Jacket is being worked by hydraulic power. The bedrock has probably been reached, and it is possible that the company will make a success of the enterprise. In the vicinity of the Yellow Jacket Company there are two or three other companies which have organized, and there is talk to the effect of having lixiviation mills erected, and additional stamps put in their stamp mills.

The climate is good, though a little cool. The timber is inexhaustible. The supply of water is very good, from off mountain springs and streams. The lower part of the valley near Salmon City is 4,000 ft. high, and there is rich agricultural ground.

When the Idaho Yellow Jacket Gold Mining Company has its 60 stamps in working order it will be capable of treating at least 200 and possibly more tons of its own ore daily. The reason that such an amount of ore can be treated is that much of the company's ore is found in a half pulverized condition. The company claims that its receipts of gold at present are from $25,000 to $30,000 per month. The discoveries and developments made in the Yellow Jacket district have attracted miners from other places, and almost daily they arrive seeking information. This country is continually better known, and there is no question but that there are deposits of gold and copper.

The officers of the Idaho Yellow Jacket Gold Mining Company are as follows: President, John E. Searles; vice-president, A. B. Roeder; secretary and treasurer, Winthrop W. Tuttle.

Oneida County.

Great interest is being aroused in placer discoveries on the Snake river, three miles below American falls, according to despatches from local sources. Results so far show that gold can be saved and the returns are good. The rich ground is found on both sides of the river, and it reaches back as far as it has been prospected, though there is at present very little encouragement to go far back from the stream owing to the difficulty of getting water. A singular feature of the ground is that gold, it is said, is distributed through it all, even the top soil being pay. The rich streak is some 4 to 5 ft. thick, but all is pay. The ground is ploughed and dumped into the sluices with scrapers.

Owyhee County.

A Silver City special says an important mining deal has been consummated. The property involved is the Alpine, Harrison and Little Chief claims on Florida mountain in the Silver City district. Capt. Plummer of the DeLamar Company was the purchaser. The claims were the property of W. N. Nichols and Judge E. Lewis. The sale was negotiated by Dan Feour and John T. Keegan. Nothing has been made public respecting the consideration. These mines are on the main ore zone of Florida mountain, and are located between the Trade Dollar and the Black Jack. Capt. Plummer will take charge at once.

Shoshone County.

Bunker Hill & Sullivan Mining Company.—At this mine a new stope has been opened almost over the hoist. This is called the Harris stope, and 28 men are employed there during the day and 20 at night. Here, as elsewhere, the timbering is of the best description, no pains being spared to render the mine as safe as practicable. The mine is now turning out an average of about 500 tons of crude ore daily, so that they have to run the tramway a quarter extra occasionally. Manager Bradley states they have all the men they need for the present, but that he intends to enter upon some new developments shortly which will require from 50 to 70 additional miners and helpers.

Cœur d'Alene Silver-Lead Mining Company.—A meeting of the stockholders of this company has been called to be held at the office in Butte, Mont., on October 12th, for the purpose of considering and voting on the proposition to sell the company's property to the Consolidated Tiger & Poorman Mining Company. The agreement and the organization of the consolidated company was noted in this column in our last issue. The property of the Cœur d'Alene Company, as described in the call, consists of the Poorman mine, one-third of the O'Neil lode, one-half of the Sheridan lode, and one-half of the land lying between the Poorman and the Tiger mines, together with the shops, boarding-houses, and other buildings and machinery.

Daddy Gold Mining Company.—This company (G. W. Coplen, manager) has a 10-stamp mill and employs 30 men. They are driving three drifts. The lower one is in 370 ft., while the upper are 260 and 100 ft. respectively, opening about 300 ft. of stoping ground. They have a 10 in. vein of friable ore, which they claim runs about $12 per ton. In taking out the ore it is necessary to break down about 24 in. of waste. In order to save handling, this waste is run through the mill, which makes the ore seem lower grade than it really is.

Hunter.—In this mine, near Mullan, says the "Cœur d'Alene Miner," the new cylinder head for air compressor in the mill building has been screwed into place and the plant has been started up. The drilling so far has been done entirely by hand, but this has been sufficient to keep the mill running. There are 45 men at work. The mill was stopped a short time to permit the addition of new elevators and a few other improvements, but is now running. They have had to refuse applications for work every day for some time, and have embraced the opportunity of picking out good men.

Morning.—A few men only have been put on at this mine, near Mullan, to make some necessary cleaning up, repairs and preparations, but sufficient is being done to establish the fact that the lessees, Messrs. Greenough & Larson, mean business, says the "Cœur d'Alene Miner," and that it will be but a short time before the property will employ a considerable force of men. The wages paid will be the same as those paid by the Bunker Hill, Last Chance and Hunter Mines—$3 per day for miners and $2.50 per day for carmen and shovelers.

IOWA

Dubuque County.

Durango.—Operations in the Durango zinc mines, near Dubuque, have been resumed. The mines have been closed since last July.

KENTUCKY.

Boyd County.

Big Sandy Coal Company.—This company has been organized with a capital stock of $200,000 to work a large tract of coal land in the valley of the Big Sandy River. The office is at Catlettsburg, and the officers are: President, John C. C. Mayo, Paintsville, Ky.; Vice-President, George W. Cray, Philadelphia; Secretary and Treasurer, C. K. Lawrence, Ashland, Ky.

MICHIGAN.

Copper.

The August output of the various mines was as follows: Atlantic, 216 tons; Franklin, 167 tons 1,985 lbs.; Wolverine, 84 tons, 1,355 lbs.

Osceola Mining Company.—Fire broke out on level No. 27 of the Osceola copper mine at Calumet, on September 7th; 200 men were below, all but 30 of whom escaped. These are supposed to have perished from suffocation. The cause of the fire is unknown.

Iron—Marquette Range.

Champion.—This mine started its steam shovel and ore crushers on September 9th with 100 men, the miners and laborers desiring to get back to work. The striking firemen and pump men of section 21 mine of the Lake Superior Iron Company also returned to work on the 9th.

MINNESOTA.

(From Our Special Correspondent.)

It is stated that the Duluth blast furnace has succeeded in getting hard ores and will start making Bessemer pig soon. The capacity of the furnace is about 100 tons a day. Its resumption doubtless means also the resumption of the Bessemer plant and the plate and angle mill of the West Superior Iron and Steel Company directly across the bay from the furnace.

Contracts have been let by the Duluth, Missabe & Northern Railroad for the mason work connected with the approach and tunnel to its new coal dock. Contracts for the coal and ore docks of the company have not been let. The Duluth & Iron Range road has let the contract for a 26-stall addition to its brick and steel roundhouse at Two Harbors, giving it a 56-stall house. There is considerable talk of new railroads to the Mesabi range, and it is possible that active steps looking to such a road may soon be started.

At the Minnesota State fair, held at St. Paul this week, the mines of the State have made a very good showing, the Chandler especially.

Iron—Mesabi Range.

(From Our Special Correspondent.)

The Hale is shipping about 500 tons a day; the Norman about 600; the Bessemer about 250; the Adams about 1 000; the Canton about 2,500; the Oliver about 5,000; the Mountain Iron about 3 000; the Ohio about 600; the Sellers about 700; the Lake Superior about 800; the Mahoning 2,500; the St. Clair about 1,000; the Franklin about 1,100; the Minnesota and Chandler, of the Vermilion range, about 5,000, and the Pioneer about 1,000, making a total from the mines of St. Louis County of not less than 230,000 tons.

Adams.—At this mine the new steam shovel bought for the stripping is warranted to move 40,000 yds. of earth a month, and there is great interest in its operation among mining men. The shovel is constructed entirely of steel. A cut 800 ft. long is to be made and about 250,000 yds. of earth will be moved.

Biwabik Ore Company.—This company has now at work on the stripping, under the contract of the Drake & Stratton Company, about 400 men and four steam shovels. Work is going on day and night.

Canton.—Water troubles this mine exceedingly. Five pumps are now at work, throwing out about 81,300 gals. a minute. Sinking is going on slowly.

Norman.—This mine is to be fitted with a new hoisting plant of large capacity.

Sheridan.—This mine will be stripped the coming

winter by the Oliver Mining Company, which now holds the fee.

Iron—Vermilion Range.

(From our Special Correspondent.)

Shipments from Soudan are 2,500 tons daily. A large stock pile of 200,000 tons of crushed ore has not been touched, and must probably be left till next year.

Minnesota Iron Company.—This company has put a drill at work on newly acquired properties on Armstrong Lake, and has already made an excellent showing of ore.

The Pike River Land Company has begun developing its property 8 miles southwest of Tower. Indications of excellent ore exist on the property.

Pioneer Mining Company.—This company has just ordered a new hoisting plan from Webster, Camp and Lane, that will be one of the largest and best in the Lake Superior region. It will be a duplex machine, with cylinders 26 by 48 in., and will handle two 8-ft. drums that will hold 1,200 ft. of cable. The skips will lift 8,000 lbs. The company's new Prescott pumps, built in Duluth, are able to lift 9,000 tons of water daily.

MONTANA.

Beaverhead County.

The Gold Dredging Company, of Chicago, has installed a Bucyrus dredge on a small stream near Bannack City for working the gold deposit in the river bottom. The initial power is obtained from water under a head of 330 ft., and its transmission to the dredge is electric. A 26-in. Pelton wheel is direct coupled with a 100 kilowatt Edison generator wound for 500 volts. The current is conveyed about 500 ft. on two insulated cables carried on movable supports, and connection at the dredge is made through a two-compartment reel supplied with brush contacts, so that the cables are always above water as the dredge moves about in the stream. On the dredge a 30 H. P. motor runs a centrifugal pump, a 60 H. P. motor drives the front and bucket elevators, and a 20 H. P. motor drives the hoisting and capstan gear. Arc and incandescent lights are also installed to facilitate night work. A feature of the plant is the excellent work done by the Pelton differential governor.

Silver Bow County.

Butte Miners' Union.—This body, at its regular meeting last week elected officers to serve for the ensuing six months as follows: President, William Welsh; vice-president, John S. Healey; recording secretary, Anthony Shovelin; financial secretary, James Maher; treasurer, John Henry Cronin; trustees, Dan Creighton, Ed Matthews; financial committee, Dan D. Shea, Jerry J. Lynch, Owen Byrnes; conductor, Dan Craig; warden, Dan Moloney. Samuel J. Roberts, the retiring president, is also the president of the Western Federation of Miners, and was not a candidate for re-election.

Minnie Healey.—At this mine, in Meaderville, preparations are being made to develop the shaft from the 250 to the 350 level, and active work in that direction will be begun next week. Regular shipments of high grade copper ore are being made and about 150 tons will be shipped this month. The lessees, Messrs. Burns, Blue and others, have now about 16 men employed and will increase the force in a short time. A new station pump has been added to the equipment of the mine. The lease runs until April, 1897, and the bond is for $100,000.

Montana Ore Purchasing Company.—This company reports a production of 600 tons of copper during the month of August, 1895, against 650 tons turned out in July.

Silver Bow No. 2.—A new Riedler pump, says the Butte "Inter-Mountain," is being put in position at this shaft. Its prominent features are mechanically operated valves of large size. These valves are of very large area, greater than the plungers, having a positive lift. The American builders have used in most cases a horizontal cross-compound Corliss engine to drive the pump, which is situated just in line back of the steam cylinders, the piston rod being extended into the pump. Motion for the pump valves is obtained from the wrist plate of the steam cylinders by means of a connecting rod which drives a wrist plate on the pump and from which the valves are moved in a manner similar to those of a Corliss engine, therefore both steam and water valves are driven from the same eccentric. Very high piston speed is obtained, as great as 400 to 500 ft. per minute. This machine is employed extensively in draining deep mines, and is placed at the bottom of the shaft, or at the lowest level wherever convenient, raising the water to the surface in a single lift, in some cases as great as 2,000 ft. The exhaust pipes are carried to a considerable height to prevent flooding the engine, by the condensing water flowing back in its exhaust pipe.

NEW MEXICO.

Taos County.

A late despatch from Bland, N. M., says that the Crown Point mine in the Cochiti district is shipping a carload of $80 ore to the Pueblo smelter daily. The Beckman mill is running full time, being supplied from the Lone Star and other mines. The Victor mine is working a force of men running a cross-cut. This vein is 16 ft. wide, running well in gold. Assessment work is being done on all the claims in the camp.

NEW YORK.

Westchester County.

O'Connell & Hillery Lime and Marble-Dust Company.—This company has been organized to quarry marble at Tuckahoe, and to prepare marble and lime for building purposes. The incorporators are James O'Connell, B. F. Hillery and John J. Bell, all of New York.

NEVADA.

Storey County—Comstock Lode.

Gold Hill.—Speaking of the Gold Hill mines, the Virginia "Enterprise" says: The Kentuck Company has resumed operations on the 1,100 level on the winze started some time ago, but stopped, pending repairs to the Jacket shaft. The winze is going down on a seam of good ore in the east ledge, and a drift is also being run on the 1,200 to connect with it. When this connection is made the 1,200 level will be well ventilated, and the gold ore known to exist there can be cheaply and conveniently extracted. The new development in Confidence near Challenge ground gives the Imperial Company courage to run off to the west with a reasonable chance to find the same ledge which is situated near the Imperial. The work of running west on the tunnel level of the Imperial was started on September 4th. Work is taking its way westward in the Occidental with excellent indications. The ore body encountered in the west crosscut is being vigorously prospected both by upraises and drifts. There is 3 ft. of ore in this vein of good quality, but is broken up to a considerable degree.

Kinkead Milling and Mining Company.—This company, which is to work the Consolidated California & Virginia waste dump, is extracting 65 tons of assorted ore per day, ready for the mill when it shall be built. Mr. Kinkead expects to have the mill completed and running by November 1st.

Following are extracts from the lastest weekly official letters of the mine superintendents:

Belcher.—On the 300-ft. level the joint Belcher and Segregated Belcher south drift is in 367 ft. from the shaft; the face is in quartz and porphyry. From the extreme end of this drift a joint east crosscut has been commenced, which is now out 7 ft.; the face of this crosscut is also in quartz and porpbyry. There have been hoisted during the week and stored 25 tons of ore, the average top car assays of which show an assay value of $43.56 per ton.

Challenge.—The west crosscut from top of the joint Confidence and Challenge raise from surface tunnel is out 170 ft.; the face is in ore of good quality. Extracted from the crosscut during the week and stored in the ore house at the mine, 13 tons of ore, the average assays of which show a value of $37 per ton. The ore is now entirely on Confidence ground and about 35 ft. from the south line of north Challenge. The ore is wider and stronger on the north side of the drift, and it is not reasonable to suppose that it will reach the Challenge ground.

Crown Point.—Repairs on August 31st and all work underground has been suspended until a regular head of water in the Carson River can be had. Shipped to the Mexican mill during the past week of the ore accumulated in the dumps at the mine, 141 tons of gold ore, from which one battery sample has been received giving $9.22, of which $8.12 was gold.

Savage.—On the 95 level, the east crosscut from the south lateral drift started 85 ft. from the station, is advanced 34 ft.; face is in porphyry and quartz. West crosscut No. 1, started from the north lateral drift 106 ft. north of the station, is advanced 85 ft.; face is in clay and porphyry. Have started a north drift from the east crosscut, fourth floor of north upraise; this drift is advanced 10 ft., following a streak of quartz giving low assays. The east crosscut on the third floor of the old stopes is advanced 24 ft.; face is in porphyry. On the 1,050-ft. level the west crosscut from the face of the south lateral drift we continue understoping the stratum of good ore and are now down 25 ft. below the sill floor. During the week we hoisted 42 cars of ore; car samples average $39.36. Shipped to the Selby Smelting and Lead Company, September 2, 428½ lbs. of crude bullion, the returns for 420 lbs. of ore worked at the Nevada mine.

White Pine County.

Chainman.—This mine, at Ely, is being negotiated for by a San Francisco syndicate.

PENNSYLVANIA.

Anthracite Coal.

The colleries throughout the Panther Creek valley are making poor time at present. Colliery No. 11 worked only 17 hours last week. This week the collieries worked 4 days. The principal difficulty is experienced in securing a sufficient number of cars.

John Drumheller, Patrick Hoary, William Gilham, Fletta Schamber and F. Welker, of West Shamokin, have brought suit for damages, aggregating about $30,000, against J. Langdon & Co., the lessees and operators of the Neilson Colliery. The company, it is alleged, mines coal from land to which they had not purchased the mineral right, and also mined so close to the outcrop of the vein that the surface caved in as the result.

The miners working in what is known as the "Seven Foot" vein in the Gaylord slope, Plymouth, went on strike last week. Until recently they have been receiving so much per car and yardage also. A short time ago the Kingston Coal Company, which operates the works, took the yardage away from the men and, to counterbalance this, they increased the rate per car. The men were dissatisfied with this change, and struck.

Owing to the scarcity of water two pumps have been connected with the Potts Run bore hole pipe, near Boston Run, for the purpose of pumping water for the use of the Boston Run, Draper and Gilberton collieries. The scarcity of water is being felt up the valley. It is said that the Reading Company, which owns the Lakeside water right, will erect a pumping station there for the benefit of the collieries. North Ashland and Bast collieries are being supplied by the Brush Valley Water Company, and as yet have not felt the scarcity. The Centralia collieries get their supply from the same source.

O. S. Johnson has secured an option on Jermyn & Co.'s mines and may purchase them. Jermyn mine No. 2 at Rendham has shut down for an indefinite period. The suspension is due, it is said, to a disagreement with the New York, Susquehanna & Western Railroad.

Stockton.—Rockmen are cutting a tunnel at the Stockton No 7 colliery from the foot of the slope, southeast, which will pass through and develop several veins of coal. The diamond drill has already passed through three veins in a hole which was sunk to a depth of over 500 ft. The Mammoth was found to be about 30 ft. thick, the Wharton about 18 ft. and the Primrose some 8 ft. in thickness. The Buck Mountain vein, which averages from 9 to 13 ft. in thickness, crops out far to the north and south, the basin being very wide at this point. Just to the west of the No. 7 colliery are the west strippings, now being very much enlarged. Here the coal reaches a thickness of 50 ft., the well-known Hazleton vein, and is of very good quality. About half a mile east of the breaker are the east strippings. These surface workings produce a large portion of the output.

Coke.

The Yough Coke and Chemical Company has filed articles of incorporation. The capital stock is $350,000. The directors are E. F. Woods, J. C. Smith, E. P. Douglas, McKeesport, Pa., and David S. Bissell, Pittsburg. It is understood that the company intends to build a plant of coke ovens with provision for saving the by-products at Portview.

Montgomery County.

Advices from Phœnixville state that the Perkiomen lead mines, at Shannonville, will be reopened and worked, after being closed for nearly 40 years. At one time they were among the leading mines of this country, but after larger and more easily worked deposits of lead ore were found in the West the Perkiomen mines closed down. The lead from which the soldiers of the Revolution made their bullets and slugs was mined at Perkiomen.

SOUTH DAKOTA.

Lawrence County.

Golden Summit.—There are 150 tons of ore on the dump at this mine, the shipments of ore having been decreased during the past few weeks, while the cyanide plant is replacing a few worn-out "shells," says the Deadwood "Pioneer." M. Hennessey, one of the owners, says that 100 ft. square had recently been stripped with plows and scrapers, and as soon as the cyanide plant starts up the shipments of ore will be resumed. He thinks they will average about 100 tons a week. The last shipment made gave a return of from $57 to $63 per ton.

TEXAS.

Webb County.

Laredo Coal Company.—This company has been organized to mine and sell coal near Laredo. The capital stock is $600,000, and the incorporators are C. B. Wright, Jr., A. L. McLane and E. A. Atlee.

UTAH.

Juab County.

Almo Mining and Milling Company.—This company has made application for a patent for the Saratoga lode mining claim. This claim is one of the Almo group, lying north and west of the Bullion-Beck mine.

Eureka Heights.—This property is now equipped with a steam pump, and it is proposed to continue sinking. The "Tintic Miner" says that the Bullion-Beck Company has secured an option on the property.

Tetro Mining Company.—The tunnel is now in over 700 ft. and is being run in an easterly direction toward the Godiva. An encouraging showing of mineral-bearing quartz has been encountered.

Tintic District.—Shipments from the district for last week were as follows: Bullion-Beck mine, 30 carloads of ore; Bullion-Beck mill, 5 carloads of concentrates; Centennial-Eureka, 12 carloads of ore; Ajax, 6 carloads ore; Mammoth mine, 1 carload ore; Sioux, 2 carloads ore; North Star, 3 carloads ore; Dragon Iron mine, 1 carload daily. A shipment of 15 carloads of concentrates was made from the Mammoth mill on September 3d.

Summit County.

Daly-West.—Bids for putting in the new concentrator for the Daly-West mine were opened last week. There were a great many bidders for this work, the following being the list: Union Iron Works and Risdon Iron Works, of San Francisco; Colorado Iron Works, of Denver; Edward P. Allis Company, of Milwaukee, Wis.; Silver Bros., of Salt Lake, Utah, and Frazer & Chalmers, of Chicago. As there was a great variation in these bids no

award was made, and the matter was taken under consideration. The improvement referred to will cost in the neighborhood of $15,000 or $20,000.

Tooele County.

Annie Laurie.—This mine has a shaft 100 ft. deep, with a 30-ft. crosscut at the bottom. The formation is in place in the crosscut. The tunnel is in 70 ft. Another contract will be let soon.

Bogan.—Work has been begun on the shaft on the Bogan & Brown group, on the east side of the Glencoe canyon.

Cannon.—This shaft has been cutting a promising formation for the past few days.

Glencoe.—This mine, at Mercur, has been bonded recently to Joseph Wilkenson, who represents an Eastern syndicate. Work is to begin immediately by driving a tunnel and sinking a 100-ft. shaft. The work done thus far has been in the upper vein, but the new management will sink for the lower strata. Bids have been called for for doing this work.

Golden Gate.—The management is sinking a shaft on the Defiance and hoisting some good ore. Murphy & Preble have sold the Independence fraction on the schoolhouse hill to the Golden Gate company.

Hecla.—Work is again progressing favorably on the Hecla shaft. The pump is working well, says the Mercur "Mercury," and while it keeps the shaft clear of water, it at the same time furnishes the Geyser mill with sufficient water to keep it grinding.

Old Fred.—The tunnel on this group is being pushed rapidly since the ledge matter was struck. The owners have already cut 60 ft. of vein matter, and are still in good looking matter. A large body of $3 or $4 ore was encountered last week in the tunnel.

VIRGINIA.

Rockbridge County.

Virginia Tin Mining and Manufacturing Company.—A meeting of the stockholders were held in Lexington, Va., recently to consider a proposition made by Boston parties to lease the company's property, which consists of the old Cash mines on Irish Creek. The proposition was not fully accepted, but some amendments were made which will be submitted to the parties who proposed to lease. Nothing has been done on the property for some time.

WASHINGTON.

Okanogan County.

Grey Eagle Mining Company.—According to the Spokane "Spokesman-Review" this is the only company of Squaw Creek which is operating to any extent. The property of the company consists of three claims, on each of which the vein is clearly traceable. Work has been done on two of the claims, but the greatest development is on the Grey Eagle mine, which is developed by shafts and drifts. A large force of men is kept steadily at work, and the ore, which is said to average $20 per ton, is milled near by in a mill leased by the company. The vein is about 6 ft. wide, free in both walls. The walls are porphyry and granite. The vein is continuous and regular with a dip of about 15° and having a strike nearly east and west. The mill and concentrator will be replaced by one of the company's own unless that leased can be purchased at a just price, and it is proposed to push work as rapidly as possible both as to development and mining the ore. The cost of mining and milling is estimated at about $6 per ton. Mr. L. L. Patrick, mining engineer of Spokane, recently reported on the property.

Pierce County.

Tacoma Smelting and Refining Company.—This company's statement for the month of August shows that 60 men were employed and the payroll amounted to $5,040, in addition to which $828 were paid for wood choppers and teams, making a total of $5,868. The product for the month was 2,800 bars of bullion, weighing 286,741 lbs. The contents were 1,660 oz gold, value $34,312; 28,511 oz. silver, value (at 66¾c.) $19,031; 232,491 lbs. lead, value (at 3⅝c.) $9,593; making a total value of $62,912.

WYOMING.

Albany County.

(From Our Special Correspondent.)

Douglas Consolidated Placer Company.—Work on the properties of this company is reported to be progressing well. A large force of men are now at work on the upper Muddy constructing a hydraulic ditch, which it is expected will be completed soon.

Other work of a similar character is under way and will be completed before snow flies. While the company does not intend to work gravel this season, it is making all necessary arrangements to take out gold as soon as the snow water strikes the claim in the spring.

Laramie County.

(From Our Special Correspondent.

Fairview Mining Company.—A rich ore body has just been uncovered in this company's mine at Silver Crown. The ore continues to improve as depth is gained. A full force of men are at work under the supervision of Mr. Masi, sinking and drifting.

Natrona County.

(From Our Special Correspondent.)

Edward Cudahy, the Chicago millionaire, and head of the Cudahy Packing Company, has lately organized a syndicate to operate in the Natrona County oil fields. A purchase of 40,000 acres of oil lands has been made; a pipe line is to be put in from the fields to Casper, while at the latter place will be erected a large refinery, tanks, store houses, etc.

Pennsylvania Oil Company.—This company has placed, in connection with its lubricating oil refinery, machinery to handle the light distillate, and is now manufacturing a high-grade kerosene. The company's oil wells are being worked to full capacity. No. 8 well will soon be finished and the daily output of the basin will approach 100 lbs. of crude.

Wyoming Syndicate Improvement Company.—Among other enterprises launched by this company is a large soda plant at Johnstown. The litigation has now ceased and the company is engaged in completing the plant and commencing the manufacture of soda. The proposition is to work a deposit which contains about one half of sulphate and one half of carbonate of soda.

FOREIGN MINING NEWS.

MEXICO.

Lower California.

Fortuna Gold Mining & Milling Company.—This company filed articles of incorporation at Salt Lake City, Utah, on September 6th. There are only 5 incorporators, and $1,000,000 of stock has been subscribed at $ 0 per share. The following is the board of directors and officers: Guy Lombard, president and manager; Benjamin L. Harding, vice-president; William H. Dale, secretary and treasurer; Charles A. Hurst and Charles W. Boyd, directors. The new company will operate on the Fortuna, a gold claim comprised in the Saragossa mining district, situated in Lower California, the Guadalupe mines, and the Desoat claim, all gold mining properties.

NEW SOUTH WALES.

Australian Smelting Company.—The statements recently published relative to the establishment of large reduction works at Lake Illawarra for the treatment of silver sulphide and other ores, are now amplified by further particulars, says the "Australian Mining Standard." The Camden Syndicate, Limited, of London, which has formed the Australian Smelting Company with a capital of £500,000, has purchased 500 acres of land at Lake Illawarra from the Illawarra Harbor and Land Corporation, which was formed five or six years ago, and which obtained concessions in regard to building a harbor at Lake Illawarra. The object of having the works at Lake Illawarra is that the process, which is an electrical one, requires four tons of coal to treat one ton of ore, and it would, therefore, be cheaper to carry the ore to Lake Illawarra than to carry the coal to Broken Hill. Another reason for the choice of Lake Illawarra is that the coal there is cheaper than at Newcastle, and that 300 miles of carriage would be saved. It is expected that 1,500 tons per day will be treated. The raising of the money for the construction of the harbor at Lake Illawarra has been underwritten in London, and it is expected that the work will be completed within three years. The board of directors of the Australian Smelting Company has been constituted as follows: Walter Savill, Arthur Wilson, M. Keswick, Alfred Fowler, George Inglis, J. A. De Wolf, and Mr. John Howell, managing director.

ONTARIO.

Detroit Gas Company.—A party of prominent Detroit business men are inspecting the Ontario natural gas fields as guests of the Detroit Gas Company, controlling the product of that territory, which covers an area of 15 square miles. There are 15 wells in operation at present, with an aggregate capacity of 30,000,000 cu. ft. of gas per day, only a small part of which is utilized. The territory affords an opportunity for the operation of 300 more wells. The product of the first well shot there is still 8,000,000 cu. ft per day, with no sign of diminution of supply or force from the day it started. The whole number of wells now in operation is included within the narrow area of 600 acres, 40 acres being allowed each well, although it is said that one-third of the space would suffice. Detroit, Kingsville, Leamington and Walkerville are supplied from these wells, Detroit alone consuming in winter, it is said, about 6,800,000 cu. ft. daily.

LATE NEWS.

The latest news from the Osceola mine in Michigan is that the fire has been subdued by forcing steam into the shaft. The rescuing party, which first entered the workings, found 25 bodies, leaving 5 men still missing.

The Bureau of Statistics, Treasury Department, reports exports of mineral oils from the United States in August at 69,997,133 gals. For the eight months ending August 31st the exports were: Crude, 72,467,111 gals.; naphthas, 6,733,039 gals.; illuminating, 433,280,469 gals.; lubricating and paraffine, 29,630,109 gals.; residium, 82,614 gals.; total, 542,202,342 gals. This is a decrease of 38,113,502 gals., or 5·7% as compared with the corresponding period last year.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Sept. 13.

PRODUCTION OF BITUMINOUS COAL, in tons of 2,240 lbs., for week ending Sept. 7th, and year from January 1st:

Shipped East and North:	1895. Week.	1895. Year.	1894. Year.
Allegheny, Pa.	40,000	2,593,247	767,539
Beech Creek, Pa.	45,730	1,768,100	1,211,475
Broad Top, Pa.	5,550	273,775	245,610
Clearfield, Pa.	67,525	3,628,631	1,601,774
Cumberland, Md.	79,971	2,213,888	†,875,7 6
Kanawha, W. Va.	‡117,100	42,1 7,912	1,709 840
Phila. & Erie R. R.	2,175	39,539	50,515
Pocahontas Flat Top.	‡	‡	2,269,821
Total.	357,121	12,679,883	9,635,540

‡ Returns not received. † Week ending Aug. 31st.

Shipped West:	1895 Week.	1895 Year.	1894 Year.
Monongahela, Pa.	15,425	571,9 6	487,229
Pittsburg, Pa.	31,800	1,291,928	934,953
Westmoreland, Pa.	35,600	1,298,951	1,097 947
Total	82,825	3,162,765	2,511,139
Grand total.	439,946	15,842 648	12,206,479

Production of coke on line of Pennsylvania Railroad for the week ending Sept. 7th, 1895, and year from January 1st, in tons of 2,000 lbs.: Week, 116,683 tons; year, 3,845,881; to corresponding date in 1894, 1,971,701 tons.

Anthracite.

The anthracite coal market continues to drag along without any change or feature of importance. There has been, if anything, a pause in the current of rumors of an impending settlement of difficulties, the trade apparently realizing that the troubles cannot be cured by any one action on the part of any individual no matter how powerful he may be.

Last week there was a slight but perceptible increase in the demand. This, however, came to a sudden stop, doubtless due to the exceedingly hot weather of the past few days, and now the market is very dull. The new business that has been done during this week was so light that it may be called practically none.

The Philadelphia & Reading and the Lehigh Valley have announced that they have raised their prices, and the local agency of the latter company quotes the following net on board prices: Egg, $3; stove, $3.10; broken and chestnut, $2.85. One would have thought, by the amount of comment aroused by the announcement of the "advance" that prices had been raised 50c. a ton, and yet these figures, though merely nominal, inasmuch as they do not obtain readily, are really very low. They are a strong commentary on what the condition of the trade must have been a month ago.

Despite this latest "advance," prices are by no means as high as the figures now quoted by the Reading or the Lehigh Valley. Thus stove may be bought, without favor, from other companies—at least from two—for $3 on board and the other sizes in proportion. And we know of an offer of free burning stove at $2 75 on board. Other sellers report prices as being "firmer, but not higher."

It may thus be seen that for all the "rumors" previously referred to prices are by no means satisfactory to-day, and sellers are depending upon an intrinsic improvement in market conditions proper to come with the cold weather rather than upon any present circumstance. The companies claim with an emphatic unanimity that is almost convincing that they have not many unfilled orders, and that therefore dealers must soon come into the market for supplies. This is not strictly true, however, for we are informed by many dealers that with what stocks they have on hand and what is still to be delivered on old orders they run no risk for at least six weeks more of a shortage so serious as to force them to buy at the prices which the companies would like to fix.

Of course there is no doubt that coal must move more freely next month than it is now doing, and consequently present prices will be easier to get. But that lighter prices can obtain even then, in the absence of an entente cordiale among the companies, is another matter.

If any plan for the amelioration of the coal trade is now being seriously discussed not a single detail of it has been allowed to transpire.

The sales-agents of the greater part of the companies and several of the most prominent of the independent operators say that they do not know of any plan such as the Wall street organs have been hinting at for the past month or two and the president of a well known company said openly that he himself knew no more of such a plan than he had read in the daily press and that outside of the probable reorganization of the Reading by Mr. Morgan and associates he did not know of any reason why the coal trade as a whole would in any way differ from to-day two months hence.

All this therefore brings us to the conclusion that the producers and sellers must act wisely and conservatively during the balance of the year if they wish to keep prices even where they are. It is to be feared that as soon as the demand requires an increase in the present production more than enough coal will be mined. Such a course necessarily means a weakness in values. Some of the shrewdest dealers apparently believe that this is precisely what will happen, and are not displaying much anxiety as to the future.

Bituminous.

The soft coal trade continues quiet and devoid of new features. Tonnages everywhere keep up without abatement, and producers are devoting their attention almost entirely to filling their contracts on time. Outside of this trade the market is very dull. There was a small Eastern contract bid on last week, and it was noticeable that all the bids were "delivered" instead of f. o. b. prices. The risk incurred by fluctuating vessel rates is taken by producers. So far this year the latter have not suffered much, as ocean freights have been low, especially during the past two months, which explains why so much attention has been given to filling "delivered" contracts.

All the new business doing is confined to spot and transient trade, and not much of that. All rail business is quiet and only the usual tonnage is going forward. The Sound business is increasing in volume somewhat, though the bulk of the coal continues to go east of Cape Cod. Consumers at the shoal water ports have been taking in supplies somewhat earlier than usual and the dull spell which the trade is accustomed to in the fall has not appeared.

Transportation on most roads is very good, especially to tide, and faster time than usual is being made. On all-rail business it is not as good as to tide but is quite fair. The car supply is good.

Vessels are in good supply and seeking trade. Light draught vessels have been abundant and shippers have been able to fill their requirements in this line almost entirely. We quote freight rates as follows from Philadelphia: To Boston and Salem, 60c.; Portland, 60@65c.; Portsmouth, 60@70c.; Fall River, Providence, New Bedford, New Haven, Bridgeport and other Sound ports, 55@60c; Wareham, 90@95c.; Lynn, 80c.@$1; Newburyport, 75c.; Dover, $1.25; Saco, 95c.; Bath, Bangor and Gardiner, 65@75c., towage where usual. From Baltimore, Norfolk and Newport News rates are 5c. higher than the above quoted.

Buffalo. Sept. 12.

(From our Special Correspondent.)

No changes in the quotations for anthracite and bituminous coal are reported. Business only fair, and buyers obtain concessions from dealers.

Lake freights on coal to Chicago and Milwaukee have advanced 15c per net ton within the past 10 days with further indications of higher figures in the near future.

Coke is firm and in good demand.

An electric car was run over the Buffalo & Niagara Falls Electric Railroad last Monday at the rate of 31 miles per hour quite successfully. The power was obtained from Niagara Falls.

The movement of coal by lake from Buffalo from September 1st to 7th, both days inclusive, aggregated 72,544 net tons, distributed as follows: 28,000 tons to Chicago, 11,400 tons to Milwaukee, 14,300 tons to Duluth, 3,300 tons to Superior, 4,105 tons to Toledo, 1,200 tons to Fort William, 614 tons to Grand Haven, 700 tons to Marquette, 975 tons to Saginaw, 700 tons to Hancock, 5,200 tons to Gladstone, and 1,250 tons to Dollar Bay. The rates of freight were as follows: 50@65c. to Chicago, 45@60c. to Milwaukee, 70c. to Grand Haven, 40c. to Oscoda and Fort William, 35c. to Saginaw, 30c. to Duluth, Superior, Gladstone, Marquette, Ashland, Hancock and Dollar Bay, and 25c. to Toledo. It will be noticed that the Lake Michigan rates have advanced 15c. since a week ago.

The quantity of coal taken through the Sault Ste. Marie Canal this season to September 1st was 1,063 476 net tons of bituminous and 176 638 net tons of anthracite, for the corresponding period of 1894, 934,827 and 288,323 net tons respectively.

The State newspapers have become aware at last of the importance of enlarging the canals of the State and are urging the people to vote the $9,000,000 canal appropriation bill this fall. A most important fact to be noted is that 80% of the tax for the projected improvements will be paid for by the counties, including New York and Erie, which receive direct benefits from the operation of the canal.

Mr. Horace A. Noble, of the firm of Frank Williams & Co., coal miners and dealers, of Buffalo, was elected grand commander of the State of New York Knight Templars. The meeting was held at Niagara Falls on Tuesday last.

Chicago. Sept. 11.

(From Our Special Correspondent.)

Some activity is again observed in the anthracite trade here, presumably from the fact that householders are beginning to lay in stocks of coal for the winter. There is no better feeling as to prices and hard coal continues on record. Bituminous coal is in fair demand. Manufacturing and other concerns are contracting more than they have been doing, and it is to be hoped that now that winter is in sight a good steady trade will appear.

Commissioner of Public Works Kent, of Chicago, has awarded the contracts for the supply of coal for the pumping stations and the City Hall. The total number of tons in the different contracts is 90,530, of which 72,830 tons are soft coal and 17,700 anthracite. The total cost will be $248,366. The names of the dealers, the stations and the amount of coal are as follows:

West Side pumping station, 18,000 tons of Roanoke lump at $2.10 to William Keucken.

Canal pumping station, 16,000 tons; Lake View pumping station, 8,000 tons; Fullerton avenue pumping station, 2,000 tons, Indiana block at $2.05 to J. J. Corbett.

Washington Heights pumping station, 1,000 tons Sullivan county, Indiana lump, at $2.35 to Crescent Coal and Mining Company.

Norwood Park pumping station, 80 tons Chicago & Indiana Coal Company, Jackson Hill lump, at $2.15.

Harrison Street Station, 8,000 tons; Chicago Avenue Police Station, 10,000 tons; Fourteenth Street pumping station, 9,500 tons; Youghiogheny nut at $2.74, to Henry E Weaver.

Bridge houses, 250 tons, Hartford, Ohio, lump at $2.51, to Crescent Coal and Mining Company.

Steam bridges, 1,200 tons; City Hall, 4,500 tons; Chicago Avenue, 12,000 tons; chestnut range, and large egg at $4.45, to Baker Brothers.

Pittsburg. Sept. 12.

(From Our Special Correspondent.)

Coal.—So far as relates to river business the situation presents no change, neither is any expected until we have a rise; the outlook for the same is not very favorable. The stillness continues all along the line; there is sufficient coal loaded to make two or three runs. Concerning the railroad coal trade, there is as much coal mined as the scarcity of cars will permit, many mines being able to produce 50 to 60 cars a day being only furnished with 12 to 15 by the railroads daily. There are reports in circulation about a strike being contemplated; whether anything will come of it will be learned later.

Connellsville Coke.—It is to be hoped that there will be no strike of the cokers. The capitalists and the workingmen engaged in practically all of the other industries of Western Pennsylvania have arranged their differences this season with remarkable success, and everybody will wish that the coke industry will be no exception. Coke is such an important article that any stoppage of that production means serious injury to other trades. A cokers' strike of any duration would throw out of employment many more men than there are actually engaged in the contest.

Operators standing firm will grant no advance until coke goes above $1.50. Meetings are being held at various points. The trade made a good showing last week, the demand again increasing 4,716 tons, almost reaching 160,000 tons. The increase in demand was about 2,000 tons greater than the increase in the output. That an advance will come and that soon is beyond question. Week's shipments, 8,758 cars, distributed as follows: To Pittsburg, 2,533 cars; to points East, 1,722 cars; to points west of Pittsburg, 4,503 cars.

Shanghai, China. Aug. 2.

(Special Report of Wheelock & Company.)

Coal.—Welsh coal has moved only in small quantities and the demand is nothing. In Australian coal there has been a fair business done in Wollongong at private terms, with sales also of at least one cargo to arrive. For Japan the market is extremely weak, stocks being very large and cargoes landed and stored unsold until storage space is all taken up. Sales for the past fortnight have been to actual consumers only. We quote for American anthracite, 12 taels per ton firm; for Cardiff, 10·50 taels; for Australian, 10·50 taels; for Wollongong, 10·50 taels, and 7·50 taels for Newcastle. For Japan prices range from 5·75 taels for Takasima lump and 4·75 taels for Namazuta lump down to 3·50 taels for inferior sorts.

Kerosene Oil.—There has been a slight decline in American, with a very full supply of Russian oil, which is taken up promptly on arrival. Stocks in godown are 1,240,508 cases American and 289,520 cases Russian, with one cargo of Batoum bulk just arrived. We quote for American 1·62½ taels per case for Devoe's and 1·55 taels for Chester. For Russian oil prices are 1·55 taels per case for Batoum and 1·52 taels for Batoum bulk.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Sept. 13, 1895.

Pig Iron Production and Furnaces in Blast.

Fuel used...	Week ending Sept. 14 1894		Week ending Sept. 13, 1895.		From Jan. '94.	From Jan., '95.
	F'ces.	Tons.	F'ces.	Tons.	Tons.	Tons.
Anthracite.	36	19,548	49	21,050	583,843	751,163
Coke...	111	125.365	149	167.7 0	3,183,539	5,147.794
Charcoal...	22	4.942	21	4,650	117.121	149,3.5
Totals	169	149 855	219	203 400	3,914,533	6,049.027

The course of the iron market is sufficiently well shown by the increases made last week by the bar-iron makers and the manufacturers of cold-rolled shafting, and the more important rise this week of $4 per ton in steel rail prices. To this must be added the increase of nearly 25,000 tons in the weekly output of the blast furnaces, as shown by their statements of September 1st.

This increase in production is fully warranted by the growing demand, and by the fact that stocks during August showed a material reduction. The present indications are that by October we will be turning out pig iron at the rate of 220,000 tons a week.

As to steel rails the policy of so large an increase at the present time is at least doubtful. The demand for standard sections is still lighter than that for any other form of manufactured iron and steel, and the rise will not tend to increase it. It will also have the effect of discouraging or delaying some new projects, especially those for local and electric roads, in which the cost of rails forms a higher proportion of the total than in most steam roads. A $2 rise might be justified, but to put the price to the highest possible point seems a doubtful policy.

NOTES OF THE WEEK.

A Chicago dispatch says that important changes were made in the iron tariff at a meeting of the Central Traffic Association's freight committee September 12th. It was agreed to recommend that the special iron tariff be abrogated October 15th and that the rates on articles named therein be restored to official classification bases; that pig iron rates be advanced to a basis of $4.20 a ton and billets to a basis of $4 75, Chicago to New York; rates to be advanced between all points in Central Traffic Association territory on pig iron and billet bases on the rates of $2 50 and $2.85 respectively, from Buffalo, Pittsburg and Wheeling to Chicago.

The Steel Rail Manufacturers' Association has been in conference in New York this week with a view to adjusting prices and perfecting other matters for the mutual welfare. No official announcement of the proceedings has been made, but the companies name $28 per ton f. o. b. Eastern mills as the price at which they are prepared to transact business in rails of 45-lb. or heavier section. The advance was prompted by the high cost of crude materials and the large extent to which the mills are employed on other lines of steel than rails. The business in rails this year has been comparatively light, and orders on the market at present are unimportant.

THE LOCAL MARKET.

But little that is new can be reported of the New York market. The demand for finished iron and steel continues steady, but there is no excitement, and though prices are well maintained, there is less demand for early deliveries on special orders than was the case two or three weeks ago.

Pig Iron.—The foundries generally are assured of a good winter's business, and there is more disposition to increase stocks, but this is not enough to cause a material increase in demand. Prices remain practically unchanged.

We quote for Northern brands, No. 1 X, $13.75@$14.25; No. 2 X, $12.75@$13 gray forge, $12.25@$12 75. For Southern irons prices are: No. 1 foundry, $13 50@$14; No. 2 foundry, $13@$13.50; No. 1 soft, $13@$13.75; No. 2 soft, $12.75@$13.25; forge, $12.50@$12.75.

Cast Iron Pipe.—There is talk of some large contracts to be placed soon, but no heavy sales are reported. The present demand is mainly for New England.

Steel Billets.—The mills continue full and prices are a little higher, say, $26.50@$27 per ton at tidewater. Re-sales of a few small lots are reported, to fill urgent demands, at a shade above the market. No sales of foreign billets are reported.

Spiegeleisen and Ferro-manganese.—There is still an active demand and prices are firm, as there are no surplus supplies. We quote for domestic spiegeleisen $22@$23 and for foreign $24@$25. For ferro manganese prices are steady and foreign is quoted $51@$51.50 at tidewater. An active business is reported for 1896 delivery.

Merchant Steel.—Orders continue to come in steadily and prices are firm, though there have been no material changes. We quote: Tire steel, 1·70@1 85c.; toe calk, 1 90@2c.; Bessemer machinery, 1·60@1·70c.; open-hearth machinery, 1·75@1·85c; spring, 2@2·10c.; steel hoops, 1·40@1·45c, delivered; links and pins, 1·70@1 80c.; soft steel bars, 1·40@1·45c.; steel axles, 1·55@1·65c.

Structural Iron and Steel.—More new business is reported, and some large contracts are promised soon. The market is active, and there has been an increase in prices all around. The mills are too busy to make early deliveries possible. Quotations are: Angles, 1 65@1 80c.; beams up to 15 in., 1·80@1·85c.; channels, 1·85@2c. on dock; tees, 1·85@2c. on dock, all firm.

Plates.—Plates are still in demand, and early deliveries cannot be had. Prices are generally higher, and there is no longer any talk of concessions on orders of any size. We quote: Steel plates, flange, 2·10@2 25c; firebox, 2·40@2·50c; boiler shell, 2@2·10c.; tank, 1·90@2c. Universal mill plates are in demand and are held at 1·90@1·95c.

Rails and Rail Fastenings.—The action of the steel-rail makers is noted elsewhere, and we have to quote for standard sections $28 per ton at mill, say $28.75@$29 at tidewater. In rail fastenings prices remain firm. Fish and angle plates, 1·40@1·45c. at mill; spikes, 1·80@1·85c.; bolts and square nuts, 2@2·15c.; hexagonal nuts, 2·10@2·20c. delivered.

Scrap and Old Material.—Old iron rails are not to be had here at any price. Foundry scrap is in demand and good lots are taken up as fast as they can be found; prices are unsettled, as sales have been largely on private terms.

Buffalo. Sept. 12.

(Special report of Rogers, Brown & Co.)

The most noticeable feature to report from this district this week, is that the jobbing foundries in this vicinity have at last been able to obtain a much needed advance in the price of their castings.

When the first advance in pig iron was reported, the malleable iron works and foundries running on specialties were able to obtain a corresponding advance in their castings; but the foundries running on jobbing work have not been able, until recently, to obtain any benefit from pig iron contracts at old figures. A contract for cars is noticed this week, the order being taken by a concern in the vicinity of Buffalo, and we are given to understand one or two large contracts are in view. Lake Superior charcoal has advanced about $1 per ton for immediate delivery, and, owing to the advance in lake freights, an extra dollar per ton is charged to offset the extended delivery and the increase in the cost of delivering at lake ports. The scarcity of soft iron both from the South and from the Mahoning and Shenango valleys is more noticeable, and an advance in No. 1 and No. 2 Ohio soft iron is reported. We revise our quotations which are on the cash basis f. o. b. cars Buffalo. No. 1 foundry strong coke iron, Lake Superior ore, $14.75; No. 2 foundry strong coke iron, Lake Superior ore, $14.25; Ohio strong softener, No. 1, $16.25@$16.75; Ohio strong softener, No. 2, $15.25@$15.75; Jackson County silvery, No. 1, $15.75@$16.75; Lake Superior charcoal, $15.25@$16.25; Southern soft, No. 1, $14.75@$15.25; Southern soft, No. 2, $14.25@$14.75; Hanging Rock charcoal, $18.50.

Chicago. Sept. 11.

(From our Special Correspondent.)

There has been considerable activity in the Chicago iron and steel market the past week. There are no particularly large sales to report, but numerous small orders have made a good week's record. The principal item of the week is the advance of Lake Superior charcoal iron to $16 per ton, Chicago. Sales of old iron rails have been made at $18 per ton, a price seemingly ridiculously high. Steel rails, billets and rods have been quiet. Structural material is selling well in building shapes.

Pig Iron.—Through the large demand for charcoal iron, the price of that article has advanced to $16 per ton, Chicago. The sales of it during the past two weeks having footed up a total of nearly 30,000 tons. Such has been the demand that there is now little of it to be bought, the furnace stocks having run low. Local iron has been in demand only in a small way, though the aggregate of sales for the week runs up to 5,000 tons. Southern pig iron has been in fair demand, though the advance in prices made recently by the furnaces has somewhat influenced sales. The Calumet Furnace Company started up its furnace this week and will run with 200 men temporary on pig iron. This winter it will open up its bar and nail mills.

The Illinois Steel Company is bringing manganese ores from the South for its spiegel manufacture for the first time in several years. It had accumulated a large stock which two or three years of depression in the iron trade failed to exhaust.

Prices are per gross ton f. o. b. Chicago: Lake Superior charcoal, $16; Lake Superior coke No. 1, $13.50@$14; No. 2, $13@$13.50; No. 3, $12.50@13; Local Scotch No. 1, $13.50; No 2, $13; No. 3, 12 50; Jackson County silveries, $15 50@$16; Southern coke, foundry, No. 1, $13@$13.50; No. 2, $12 75@$13; No. 3, $12.50; Southern soft, No. 1, $13@13.50; No. 2, $13; Southern car-wheel iron, $17.50 Southern silveries No. 1, $14; No. 2, $13.50; Tennessee charcoal No. 1, $13@$13.50; Bessemer, $13.50@$14; Ohio strong softeners, $13.50@$14.

Bar Iron.—Sales have been fair, but small quantities have been the rule. The large buyers are holding off, though they are expected to appear soon. Bar iron is selling, common, 1·40@1·50c, and refined, 1·55c.

Steel Rails.—Inquiry is good, but few sales have been made during the week. Prices have been raised and are $29@$30.

Billets.—No large contracts have been closed during the week, and sales have been fairly good. The advanced price of billets holds, viz., $24@$24.50.

Structural Material.—Building shapes are in active demand, though in no large way. Bridge material is selling moderately. Prices are for universal plates 1·90@2c.; beams and channels, 1·90@2c; angles, 1 85@1·90c; tees, 1·90@2c.

Old Rails and Wheels.—One sale of old iron rails was made at $18 per ton. It was for 500 tons. No sales of wheels are reported. Old wheels are quoted $11.50.

Cleveland, O. Sept. 12th.

(From Our Special Correspondent.)

While the supply of available ores of any description for delivery this season is quite limited the inquiry from buyers is active, and the effect has been to still further stimulate prices. The great bulk of the ore now moving is at the low prices made early in the year and the quotations made below are not therefore for the large deliveries in progress, but for the few scattering and urgent purchases made at this comparatively late season. Everything seems to conspire to advance this current rate. It is not a question of mining capacity, but of enough vessels to get the new ore to market before the season of navigation closes.

The grain trade has been pretty thoroughly monopolizing the loose lake tonnage during the past week and the ore trade, hampered as it is by heavy sales, made early in the year at a low range of prices, was disposed to let the tonnage go, not feeling that more than $1 per ton could be paid for lake tonnage on ore. But there were some shippers of ore in urgent need of vessels, and so they accepted the alternative and bid up the tonnage from $1 a week ago to $1.25, a phenomonal advance in one week. The latter figure was paid yesterday to cover a large block of ore, but $1.20 is the rate for single, spot, wild charters.

The season is now sufficiently advanced for some probable estimate to be made of the results in the Marquette range strike. About two months of navigation remain. There are on the stock piles at Ishpeming and Negaunee an estimated stock of 800,000 tons. This, under normal conditions, could all be moved in 40 days, but under the disabilities of military protection and a hostile population it is questionable if it will not require the full term of this season's navigation to get this ore in stock to the docks. The outlook now is that there will be no resumption of mining in the striking Marquette range this season, and should this prediction be verified there will be an estimated shortage of Bessemer ores there of 100,000 tons, besides a large amount of non-Bessemer ore. Iron men are now trying to cover this shortage from other ranges and that they have been successful is indicated by the reported sales of about 140,000 tons of ore during the week These sales are almost exclusively Mesabi Bessemers. The inquiry for ore is general, but one prominent shipper says that the demand from the East, that is east of the Alleghanies, is particularly noticeable. He attributes the demand to the fact that the previous scource of supply for these Eastern mines was largely a number of small mines, which shut down on account of the depression and have not since found it profitable to start up again.

Sales of ore are reported this week at the following quotations: Standard Bessemer specules, $4.75; standard Bessemer hematites, $3.75@$4; standard non-Bessemer specules, $3.50@$3.75; standard non-Bessemer hematites, $3.@$3.25. Interior ores were sold at a lower scale of prices.

Philadelphia. Sept. 13.

(From Our Special Correspondent.)

Pig Iron.—The pig iron market is quieter, so far as inquiries and sales are concerned, but feverish as regards the near future. The pivot on which the market rests is the volume of the fall trade in finished products. If heavy, prices may advance a little on early deliveries; if moderate or light, prices may weaken. The large sales of Bessemer at high prices do not affect forge or foundry directly. Furnace owners prefer to do very little business, believing that prices will move up a little under a heavier demand for finished products. No. 1 Foundry is $14@$14.25; No. 2, $13@$13.25. Forge, $12 to $13.

Steel Billets.—No business on account of extravagant quotations. Western are nominally $25.50@$27. Eastern, nominally, $25.50@$26, but buyers cannot get a figure they would listen to.

Muck Bars.—The high quotations for soft steel have made a moderate demand for muck bars at $23.50@$24.

Merchant Bars.—Some country mills are in the market for October deliveries, and a few brokers think there will be a slight reaction in consequence. So far refined iron is held at $1.50 at mill, but common has been booked this week at figures that look like a concession, though the fact of a reduction in price is desired.

Nails.—A good business is being done in nails in view of an expected advance.

Skelp.—The buyers of skelp continue in the background for the present, and orders are solicited for grooved at 1.40@1.45.

Sheets.—A moderate demand continues for sheets, and winter deliveries can be had on slightly more favorable rates.

Pipes and Tubes.—Mills are getting nicely through with urgent work, and easier prices are looked for.

Plates.—There is a little hesitancy in some quarters to pay so much money for plate and tank. The mills are full of business; much more work could be had if prices suited. There is a very unsettled feeling in the market. Tank steel is 1·90; heavy plates, 2·00.

Structural Material.—The mills are all crowded and much more work is in sight, but there is a hesitancy about placing big orders. Angles are 1·70. Beams and channels, 1·80.

Steel Rails.—The advance to $28 was rumored a few days ago. The agents and brokers here allege that this move will increase the demand.

Old Rails.—The demand for rails is improving and prices are now quoted at $17.

Scrap.—A general improvement in demand for scrap is reported all around. Railroad is scarce. Some sold yesterday at $14.50 delivered.

Pittsburg. Sept. 11.

(From Our Special Correspondent.)

Raw Iron and Steel.—Business conditions have continued both satisfactory and encouraging. A large volume of trade has been fairly maintained, actively in leading lines, and now that the vacation season is over, there is promise of a steady expansion of business. The industries, as a rule, are in excellent condition. The buoyancy of prices and activity in the iron and steel trade have shown no signs of abatement. Slight advances have been made in Bessemer pig and steel billets. Western bar iron makers have been advancing prices along about $2 at a time. Billets and wire nails have also felt the effects of the upward tendency in values, and the general tendency of values on all finished iron products is upward. Crops—Corn is virtually assured, and as it is likely to be the biggest ever grown, its favorable promise inspires strong hopefulness with regard to the business outlook. From the East the report comes that the Carnegie interest has purchased 40,000 tons Bessemer pig in the Schuylkill and Lehigh valleys while negotiations are pending for additional quantities. What gives color to these reports is the fact that notwithstanding the enormous amount of metal made by this firm it falls far short of what is required to meet their current demand, their orders for structural material being fully sufficient to keep them employed the balance of the year, to say nothing of the other numerous orders they have booked. The demand for material from consumers is urgent, and as the railroads have not yet placed any considerable orders, the impression is general that much higher prices will prevail in a short time. Some fear is entertained of importation from abroad, but the foreign markets are showing considerable firmness in sympathy with our own. The iron market is scarcely as strong as the steel trade, foundrymen not reporting the same demand. There is some complaint of Southern competition, but the late advance in Southern prices and in freight rates has rendered the complaint less urgent.

Latest.—Bessemer Pig is steady with a liberal amount of transactions. Appearances indicate that the advance in Bessemer and billets are checked for the present. It has just been announced that rails have been advanced $4 a ton, making the syndicate price $28. This is the highest price for several years. The stock of pig iron was reduced for last month 80,000 tons, being about ⅛ of the total amount on hand the month preceding. Ferro manganese is firm and higher sales have been made. Muck bar advanced 50c. Wire rods again advanced. Sheet bars advanced $3 a ton. The general outlook is a very favorable one.

COKE, SMELTED LAKE AND NATIVE ORE.

Tons.		Cash.
10,000	Bessemer, Oct. to Jan., Pittsburg	$17.50
10,000	Bessemer, Oct., Nov., Dec., Valley	17.00
7,500	Bessemer, Oct., to Jan., Pittsburg	17.50
7,500	Bessemer, Oct., Nov., Dec., Pittsburg	17.75
5,500	Bessemer, Oct., to Nov., Pittsburg	17.85
5,000	Bessemer, Oct., Nov., Dec., Pittsburg	17.35
5,000	Bessemer, Sept., to Jan., Valley	16.75
5,000	Bessemer, Oct., to Dec., Pittsburg	17.85
3,000	Bessemer, Sept., Oct., Valley	16.85
3,000	Gray Forge, Sept., to Dec., Pittsburg	13.00
2,000	Gray Forge, Sept. to Oct., Pittsburg	13.10
1,000	Gray Forge, Pittsburg	12.75
1,000	Gray Forge, Valley	12.50
1,000	Gray Forge, Pittsburg	13.10
500	No. 2 Foundry, Pittsburg	14.25
300	No. 1 Foundry, Pittsburg	15.25

CHARCOAL.

800	Cold Blast	$21.00
600	Warm Blast Extra	22.00
300	Cold Blast	24 00
300	No. 2 Foundry	17.25
100	No. 2 Foundry	17.50
50	Cold Blast	24.00

BLOOMS, BILLETS AND SLABS AT MILL.

5,000	Billets, Sept., Oct., Nov., at mill	$25.00
1,500	Billets, Oct. to Jan., at mill	25.15
3,000	Billets, Oct., Nov., at mill	24.85
2,500	Billets, Oct., Nov., at mill	25.00
500	Billets, prompt, at mill	24.75
500	Billets, prompt at mill	24.60
500	Slabs, prompt, at mill	24.95

SKELP IRON.

700	Wide gr'vd	1.50 4 m.
500	Nr'w gr'v'd	1.50 4 m.
300	Sheared	1.75 4 m.

SKELP STEEL.

800	Nr'w gr'vd	1.45 4 m.
720	Wide gr'vd	1.45 4 m.
600	Sheared	1.70 4 m.

SHEET BARS.

500	At Makers' Mill	$27.00

STEEL WIRE RODS.

1,500	At Makers' Mill	$32.00

FERRO-MANGANESE.

1,000	80%	$51.50
500	80%, foreign	55.00

OLD RAILS.

2,000	Iron Wheels, Valley	$19.75
1,000	Iron Rails	19.50
500	Iron Rails	20.00
500	Steel Rails	16.50
200	Steel Shorts	17.00

SCRAP MATERIAL.

500	No 1 R.R. Wr'ght Scrap, net	$15.00
300	Cast Scrap, gross	11.75
300	Old Car Wheels, gross	12.00
200	Cast Borings, gross	7.50

METAL MARKET.

NEW YORK, Friday Evening, Sept. 13, 1895.

Gold and Silver.

Prices of Silver per Ounce Troy.

Sept.	St. Ex.	London Pence.	N. Y. Cts.	Value of £1. in $.	Sept.	St. Ex.	London Pence.	N. Y. Cts.	Value of £1. in $.
7	4.89⅞	30 5/16	67	.518	11	4.89⅞	30 5/16	67⅛	.519
9	4.89⅞	30 5/16	67	.518	12	4.89⅞	30 5/16	67	.518
10	4.89⅞	30 5/16	67	.518	13	4.89⅞	30 5/16	67	.518

Silver is without new features. Offerings have been fairly liberal, but the demand has been good and has absorbed the supplies without depressing the price. Eastern exchanges have been firm and no great variation is in sight.

The United States Assay Office at New York reports the total receipts of silver at 165,000 oz. for the week.

Gold and Silver Exports and Imports.

At all United States ports, July, 1895, and years 1895 and 1894 in coin and bullion:

	Gold.		Silver.		Total excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
July.	$3,867,518	$574,049	$4,814,031	$1,073,583	E. $7,033,917
1895..	39,098,956	26,558,995	28,711,458	5,386,014	E. 35,865,405
1894..	85,150,380	12,85',402	26,928,700	5,542,529	E. 93,684,149

Imports and exports of gold and silver in ores for the seven months to July 31st are reported as below:

	Gold.		Silver.	
	1894.	1895.	1894.	1895.
Imports	$417,257	$999,639	$4,097,418	$6,569,482
Exports	19,719	317,529	183,556	36,142
Excess. Imports	$397,538	$682,110	$3,913,892	$6,533,340

These imports and exports in ores are not included in the table of exports and imports of coin and bullion given above.

Adding the exports and imports in ores to those in coin and bullion, we have the following statement for the seven months of the present year to July 31st:

	Exports.	Imports.	Excess.
Gold	$39,416,485	$27,558,634	E. $11,857,851
Silver	28,747,600	11,955,496	E. 16,792,104
Total	$68,164,085	$39,514,130	E. $28,649,955

The statement includes all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

Gold and Silver Exports and Imports, New York

For the week ending September 13th, 1895, and for years from January 1st, 1895, 1894, 1893 and 1892:

	Gold.		Silver.		Total Excess. Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$5,536,627	$27,051	$643,955	$16 320	E. $6,127,211
1895..	54,876 035	25,723 920	28,323,441	1,323,048	E. 56,153,428
1894..	82,427,435	14,112,076	25,101,526	1,169 600	E. 92,547,285
1893	69,355,316	55,977,789	23,136,279	1,805,504	E. 34,708,302
1892..	54,694,073	6,530,756	16,145,144	1,788,496	E. 66,519 965

The gold exported for the week went to London, with the exception of a small amount to Germany; the silver went to London. The gold imported was from the West Indies; the silver from South America.

FINANCIAL NOTES OF THE WEEK.

The advance in business continues quietly and steadily and there is no cessation in the demand for raw materials and for labor. In fact we hear from some quarters of difficulty in obtaining a sufficient number of skilled workmen, and in some trades the demand is sufficient to enforce material increases in wages. The speculative markets are not active just now and the somewhat unusual condition is presented of actual improvement outrunning speculation. The increase in demand and prices in some trades has brought production up very nearly to its possible limit, unless enlargements of plant are made.

Exports of gold still continue, and from New York the amount sent abroad so far this week has been $2,650,000, with about $4,550,000 more taken for shipment by to-morrow's (Saturday's) steamers. This makes a total of $7,200,000 for the week. So far the outward movement has not shown signs of stopping. As we have noted before, the net exports—after adding the latest shipments—are less this year than for several years past; the outgo seems to be a normal movement almost entirely. The withdrawals of gold from the Treasury have been partly made good by a deposit of $3,000,000 made by the syndicate.

The statement of the United States Treasury on Thursday, Sept. 12th, shows balances in excess of outstanding certificates as below, comparison being made with the corresponding day of last week:

	Sept. 5.	Sept. 12.	Changes.
Gold	$99,127,567	$97,612,006	D. $1,515,561
Silver	26,830,595	25,548,517	D. 1,282,078
Legal tenders	23,544,073	26,068,746	I. 2,524,673
Treasury notes, etc.	35,417,954	37,721,204	I. 2,303,250
Total	$184,920,189	$186,950.473	I. $2,030,284

Government deposits with national banks on the same date amounted to $14,492,096, an increase of $88,213 during the week.

Total United States Treasury notes issued under act of July 14th, 1890, in general circulation and in the Treasury, $144,334,280. Against these are held in the Treasury 20,342,518 coined standard silver dollars, and silver bullion purchased at a cost of $124,001,762, making a total of $144,344,280.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending August 31st, gives the following totals, comparisons being made with the corresponding weeks in 1894 and 1893:

	1893.	1894.	1895.
Loans and discounts	$396,969,200	$491,701,400	$518,365 800
Deposits	373,787,700	583,780,100	576,855,300
Circulation	11,209,400	9,867,700	13,505,900
Specie	69,260,900	90,708,900	64,427,100
Legal tenders	27,152,400	117,170,400	114,633,500
Total reserve	$96,413.300	$207,879,300	$179,060,600
Legal requirement	93,446.925	145.915.025	144,213,825
Surplus reserve	$2,966,375	$61,934,275	$34,846,775

Changes for the week this year were increases of $5,106,000 in loans, $1,925,400 in deposits and $150,100 in circulation; decreases of $4,303,150 in surplus reserve, $937,100 in specie and $2,884,700 in legal tenders.

For convenience of comparison, we have grouped together in the table below the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars, and comparison is made with the holdings at the corresponding dates last year:

	Gold.	Silver.	Total.
Asso. Banks of New York	.....	.....	$64,427,100
1894	.....	.....	90,768,900
Bank of England	$209,498,080	.....	209,498,080
1894	199,002,625	.....	199,002,605
Bank of France	408,068,750	$250,706,000	658,774,750
1894	381,120,121	251,923,908	632,074,029
Imp. Bank of Germany	.....	.....	245,330,000
1894	.....	.....	237,220,000
Austro-Hungarian Bank	106,400,000	65,838,000	172 378,000
1894	65,072,000	77,432,000	142,504,000
Netherlands Bank	21,423,000	34,467,000	55,490,000
1894	22,493,000	34,239,000	56,832,000
Belgian National Bank	.....	.....	21,819,000
1894	.....	.....	22,662,000
Bank of Spain	40,022,000	59,006,000	99,028,000
1894	39,817,000	46,254,000	86,071,000
Bank of Italy	60,545,000	11,135,000	71,680,000
1894	.....	.....	.....
Imp. Bank of Russia	292,935,000	34,305,000	327,270,000
1894	.....	.....	.....

The return for the Associated Banks of New York is of date September 7th; all the others are of date September 12th, except the Bank of Italy, whose return is dated August 10th, and the Bank of Russia, August 1st-13th. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports its gold only, not considering silver at all. The Imperial Bank of Germany and the Belgian National Bank do not report gold and silver separately.

Shipments of silver from London to the East for the year to August 29th are reported by Messrs. Pixley & Abell's circular as below:

	1894.	1895.	Changes.
India	£3,791,015	£2,458,880	D. £1,332,135
China	2,093,373	1,230,067	D. 863,306
The Straits	947,446	541,503	D. 405,943
Total	£6,831,834	£4,230,450	D. £2,601,384

Shipments for the week were £48,000 in bar silver to India; £46,900 in bar silver and £2,400 in Mexican dollars to China; a total of £102,300. Receipts for the week were £27,000 in bar silver from Chile; £215,000 in bar silver and £5,000 in Mexican dollars from New York; a total of £247,000 for the week.

Indian Exchange is strong this week and all the Council bills offered were taken at a slight advance, the rate being 13 5/16@13¾d. per rupee. Business in India is not particularly active, but the Exchange rate has been raised chiefly by heavy buying on Chinese account.

The Illinois Central Railroad Company will shortly offer in London an issue of $2,500,000 in 3% sterling bonds. It is said that the issue price will be 94. There continues to be a demand for good bonds in London, and it is believed that the completion of some of the pending reorganizations will help sales of all American railroad securities.

The Canadian trade returns for the year ending July 30th last show imports of $115,557,000, and exports of $106,440,000. The decrease, compared with the preceding year, is over $6,000,000 in exports and $7,000,000 in imports.

The Imperial Office for Statistics publishes the following report on German foreign trade in 1894, according to the countries of origin and destination.

	Imports.	Exports.
Europe	Marks 2,994,400,000	Marks 2,443,500,000
Africa	72,100,000	38,700,000
Asia	251,800,000	99,300,000
America	951,900,000	447,800,000
Australia	98,900,000	21,200,000
Seaward (others)	1,400,000	900,000
Total	4,285,500,000	3,051,400,000

As will be seen from the following statement, raw materials and articles of food constitute the principal part of the imports. Manufactures, on the other hand, are the chief articles of export:

	Imports, marks.	Exports, marks.
Raw materials and articles of food	2,888,600,000	758,100,000
Manufactures	1,049,600,000	2,193,300,000
Precious metals	347,300,000	90,000,000

The growing importance of Germany as a manufacturing and commercial country is at present a subject much discussed in that country.

The statistics of the report of the Inspector-General in Bankruptcy for the past year, just issued by the Board of Trade, give some confirmation to the general impression that the business situation is gradually improving. The number of failures recorded for 1894 show a reduction of nearly 2% on that of the preceding year, while the amount of the liabilities was less by over 11%. The number of receiving orders issued during the twelve months was 4,762, a decrease of 112, while the liabilities amounted to £6,964,000, a reduction of £528,000. The estimated loss to creditors is placed at £5,384,000, an amount less by £205,000 than that of 1893. The particulars of deeds of arrangement show equally satisfactory results, the total being 3,894, a reduction of 44, while the liabilities, aggregating £6,419,000, were less by £1,155,000 and the resulting loss to creditors of $4,311,000 was less by $69,000. The year 1893, it is stated, indicated the high-water mark of insolvency, and during the present year the failures continue to show a progressive decrease upon the figures of 1894.

Domestic and Foreign Coins.

The following are the latest market quotations for he leading foreign coins:

	Bid.	Asked.
Mexican dollars	$0.53¼	$0.53¾
Peruvian soles and Chilean pesos	.48	.50
Victoria sovereigns	4.88	4.92
Twenty francs	3.88	3.91
Twenty marks	4.78	4.82
Spanish 25 pesetas	4.78	4.83

Other Metals.

Copper.—The market is quiet but very firm. Very little has been doing, and the efforts of some buyers to pick up cheap lots proved futile. Lake copper from first hands is not obtainable below 12¼, and second hands also have offered hardly anything below that figure. Makers of electrolytic copper show great firmness, and we understand that several bids somewhat below current market prices, which remain 11¾@11⅞, delivered, have been refused. For casting copper a good demand exists, but supplies are rather short. We have to quote 11½@11¾. Producers of Arizona pig copper remain out of the market. Manufacturers continue to be very busy, but new orders do not come in very fast.

The G. M. B. market in London has been rather irregular, where the transactions from day to day have been fairly large, but hardly give a true picture of the consumer's market. The price for spot copper at one time during the week declined to £46 2s. 6d., but has since again advanced considerably, and the closing quotations are £47@£47 2s. 6d. for spot and £47 7s. 6d.@£47 10s. for three months prompt. For refined and manufactured we quote: English tough, £50 10s.@£51; best selected, £51 5s.@£51 15s.; strong sheets, £56 5s.@£56 15s.; India sheets, £53@£53 10s.; yellow metal, 4⅜d.

The demand from consumers is also reported to have been slack, but prices are fully maintained, and the finer grades of copper continue to be scarce.

Copper Exports.—The exports of copper from the port of New York during the week ending September 13th, 1895, as reported by the New York Metal Exchange, were as follows.

Copper:			
Rotterdam—Spaarndam	Ingots	110	tons.
" "	Plates	119	"
" "	Old Copper	10	"
Stettin—Hekla	Ingots	20	"
Liverpool—Campania	"	10	"
" "	Pigs	50	"
Mexico—Orizaba	Wire	2	"
London—Europe	"	6	"
" Massachusetts	"	9	"
Hamburg—Prussia	Ingots	25	"
Trieste—Peconic	C. H. Ingots	180	"
Rotterdam—Veendam	Plates	95	"
" "	Bars	100	"
" "	Pigs	50	"
" "	Ingots	1	"
Matte:			
Swansea—Exeter City		180	tons.

Exports of copper from Baltimore for the week ending September 13th are reported by our special correspondent as follows:

Copper:			
Rotterdam—Tabasco	682 ingots.	11,260	lbs.
" "	1,713 bars.	257,741	"
Antwerp—Belgian King	227 "	22,695	"
Liverpool—Queensmore	38 cakes.	11,223	"

This is a total of 817 long tons of copper, and 180 tons of matte from New York, and of 136 tons of copper from Baltimore; a total of 953 tons of copper and 180 tons of matte exported for the week.

We have also to record the arrival during the week at New York of 51 tons of copper ingots, of which 25 tons were American copper, reshipped from abroad, and 26 tons were reported as Tharsis ingots.

Tin.—The transactions this week were fairly large, and the tendency was a very firm one. Deliveries continue to be good, and more confidence is shown. We quote for spot or futures 14 50@14¾.

The London quotations ruled steady with only trifling fluctuations, and we close £65 5s.@£65 10s. for spot, and £65 12s. 6d.@£65 15s. for three months prompt.

Messrs. De Monchy & Havelaar's circular letter gives the following estimate of the stocks of tin in Holland on August 31st, in metric tons:

	1893.	1894.	1895.
In warehouse	677	3,298	3,951
Afloat	2,128	2,207	1,747
Total	2.805	5,505	5,698

The public sale at Batavia on August 21st included 12,000 piculs, the average price being equivalent to 38⅝ fl. in Holland.

Lead.—Not much business has been done, and the quotations remain unaltered at from 3·40@3 42½. The exports of lead refined from foreign bullion continue.

The foreign market has eased off somewhat, and

Spanish lead in London is quoted £10 16s. 3d.@£10 18s. 9d., and English lead 2s. 6d. higher.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is dull and weak. Advices from New York have been so discouraging as to demoralize our buyers. The latest sales are on a basis of 3·15, and at this figure more lead can be bought than sold.

Spelter.—Destructive rains have wrought great havoc in the Joplin district, where a great many mines have been flooded, and the output of ore is considerably diminished. Smelters find great difficulty in securing the necessary raw materials, and prices for ores have advanced considerably. This necessarily had to reflect on prices of the refined metal, which have again sharply advanced, and transactions took place in St. Louis at 4¼@4·15. Prices in the East have not yet advanced correspondingly, and we have to quote for prime Western spelter 4·30@4·35.

The foreign market remains steady, with good ordinaries quoted in London at £15 5s., and specials £15 7s. 6d.

Antimony continues lifeless. Cookson's at 7¾; Hallett's, 7¼; U. S. French Star, 7½c.

Aluminum.—The standing quotations, according to producer's price list, are given below, the three prices named being respectively for small lots, for orders of 100 lbs. or over, and for orders of one ton or over: No. 1 metal, over 98% pure, in ingots ready for rolling, etc., 60c., 58c. and 55c. per lb. No. 1 metal, in ingots for remelting, 55c., 52c. and 50c. per lb. No. 2 metal, over 94%, but less than 98%, in ingots for remelting, 53c., 50c. and 48c. per lb. Rolled sheets, No. 1 metal, 80c.@$4.40 per lb., according to size and thickness. Wire, $1@$2.50 per lb., according to gauge. Tubes, from 14c.@$3.15 per linear foot, according to thickness and diameter. Castings, from 90c. per lb. up, according to pattern and size of order.

Abroad the price is fixed by the Neuhausen Company, which quotes 5 fr. per kilo.—equivalent to 45c. per lb.—at works in Switzerland for small orders; a discount is made on large sales. Quotations in Paris, for large orders, are 5 fr. per kilo. for ingots; 6 fr. per kilo. and upwards for sheets; 10 fr. per kilo for wire, 0·5 mm. and over; 15 fr. per kilo. and upwards for sheets. For small orders the quotations are 6·50@7 fr. per kilo.

Bismuth.—Quotations are nominally $2@$2.50 per lb., according to size of order.

Iridium.—The demand is very small, and only occasional sales are made. The price varies from $25 to $35 per ounce, according to order and quality.

Magnesium.—The maker's prices are as follows, at works in Germany: 27 marks per kilo.—equivalent to $2·91 per lb.—for ingots; 26 marks per kilo. for bars; 36 marks per kilo. for powder, and 38 marks for ribbon and wire. For orders of less than 10 kilos., 1 mark per kilo. must be added for ingots or bars, and 2 marks for wire, etc.

Nickel.—Quotations are steady at 35@38c. per lb., and a little more business is reported.

In London quotations are 13@13½d. per lb. In Paris quotations are 4·25@4·50 fr. per kilo. (say 37@44c. per lb.) for pure metal; 2·25@2·75 fr. for a 50% copper-nickel alloy.

Phosphorus.—Quotations current are 50@52½c. per lb., New York or Philadelphia.

Platinum.—Prices are without change, though an increase is expected. We continue to quote $11.50 per ounce. New York, for large lots, while the London price is 45@46s. per ounce.

For chemical ware, best hammered metal, Messrs. Eimer & Amend, New York, furnish the following quotations, the prices given being respectively for orders of over 250 grams; for orders of over 100 grams and less than 250 grams, and for orders of less than 100 grams: Crucibles and dishes 41c., 43c. and 45c per gram. Wire and foil are 40c., 41c. and 42c. per gram. The current retail price for crucibles is 50c. per gram.

Quicksilver.—Quotations continue unchanged at $39.25 per flask, New York. The London price is £7 5s. per flask, with £7 3s. 6d.@£7 3s. 9d. quoted from second hands.

Sodium.—In England makers' price is equal to 90@96c. per lb., according to quantity. Occasional sales only are reported here, usually on private terms.

Tungsten.—The following quotations for this metal and its compounds are furnished us by the manufacturers: Tungsten metal (powder) 98% pure, 70c. per lb.; tungstic acid, 45c. per lb.; tungsten salt (tungstate of soda), 30c. per lb. These quotations are for large lots. For ferro-tungsten the quotations for ton lots of the various grades are as follows: 60% metal, 60c. per lb.; 50% alloy, 45c. per lb.; 37% alloy, 33c. per lb. There has been no recent change.

Imports and Exports of Metals.—Imports of metals into this port for the week ending September 5th, as reported by the New York Metal Exchange, were as follows: 20,303 boxes tin and black plates, and 99 tons copper bars from the United Kingdom; 50 tons Straits tin, and 20 tons Banca tin from Holland.

Exports of metals from the port of New York for the week were: 5 tons nickel to Havre; 5 tons yellow metal to Liverpool; 18 tons sulphate of copper to Mexico, and 5 tons old metal to Rotterdam.

Arrivals at Philadelphia for the week ending September 7th were: 225 tons ferro-manganese from Liverpool; 1,500 tons iron pyrites from Pilley's Island; 485 tons manganese ore and 2,425 tons iron ore from Cuba.

Arrivals at Baltimore for the week ending September 7th were: 12,695 boxes tinplate, 67 tons pig iron, 15 tons spiegeleisen and 100 tons ferro-manganese from Liverpool; 6,840 tons iron ore from Cuba.

Exports from Baltimore for the week ending September 12th are reported by our special correspondent as follows: 252 bbls., 136,125 lbs., sulphate of copper to Rotterdam.

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, September 13th.

Heavy Chemicals.—The market for heavy chemicals has been quiet during the week. Alkali and carbonated soda ash are firmer and in good inquiry, though the volume of business shows a falling off due to the expectation on the part of buyers that lower prices may rule later. Caustic has been in fair demand for future delivery. Bleaching powder has been in short spot supply, and prices have been firm. Our quotations this week are as follows: Caustic soda, 2·10@2·20c. for spot, according to test; futures, 1·95@2·10c. Carbonated soda ash 48%, is ·95@1c.; 58%, ·90@95c.; according to quantity and delivery. Alkali is 90@1·05c., according to test. Bicarb. is 1·80@2c for spot. Bleaching powder is $1.85@$1.95. Sal soda, 70@75c.

Acids.—There is an improved demand for the various acids, notably for sulphuric. Prices, though not appreciably higher are firmer, and we quote, per 100 lbs. in New York and vicinity, in lots of 50 carboys or more: Acids, acetic, $1.40@$1.65 (in barrels). Muriatic, 18°, 75@85c.; 20°, 90c.@$1.15; nitric, 36°, $3.25@$4; 40°, $4@$4.50; 42°, $4.50@$5.25. Mixed acids according to mixture: oxalic, $7@$7.50. Sulphuric, 60°, 60@70c.; 66°, 70@85c. Blue vitriol is quoted at $3.75@$4.

Brimstone.—The market for Sicilian brimstone is quiet. Quotations for best unmixed seconds are as follows: Shipments, and nearby arrivals, $15@$15.50. Best thirds are 50@75c. less.

Fertilizing Chemicals.—There is a better feeling in the fertilizer market due to the improved demand. Prices are firmer, especially for ammoniates, and we quote this week: Sulphate of ammonia, gas liquor, $2.65; bone, $2.55. Dried blood, high grade, $1.85@$1.90; low grade, $1.70@$1.80, per unit. Azotine, $1.85@$1.90. Concentrated phosphate (30% available phosphoric acid), 70@71½c. per unit. Acid phosphate, 13% to 15%, av. P_2O_5, 57c. per unit at seller's works in bulk. Dissolved bone black, 17% to 18%, P_2O_5, 90c. per unit. Acidulated fish scrap, $12, and dried scrap with few or no sales, nominally $21 f. o. b. fish factory. Tankage, high grade, $19@$21; low grade, $18@$19. Bone tankage, $21; ground bone, $19@$20. Bone meal, $21@$22.

In lots of 50 tons on contracts we quote, per 100 lbs: Double manure salts, 48-53% (basis of 48%): New York, Boston and Montreal, $1.10; Philadelphia and Norfolk, $1.12½; Charleston, Savannah, Wilmington, N. C., and New Orleans, $1.15. Sulphate of potash, 90%, and minimum, 96% respectively (basis of 90%): New York, Boston and Montreal, $2.08@$2.09; Philadelphia and Norfolk, $2.10½, Charleston, Savannah, Wilmington, N. C., and New Orleans, $2.13.

Muriate of Potash.—Quotations for lots of 50 tons are as follows: 80 85% and minimum 95%, respectively (basis of 80%): New York, Boston and Montreal, $1.78; Philadelphia and Norfolk, $1.80½; Charleston Savannah, Wilmington, N. C., and New Orleans, $1.83.

Kainit.—Prices for kainit (minimum 23%) are as follows for invoice and actual weights respectively: New York, Boston and Philadelphia, $8.30; Norfolk, $9.15; Charleston, Savannah, Wilmington, N. C., and New Orleans, $9 55.

Nitrate of Soda.—Messrs. Mortimer & Wisner, the well-known brokers of this city, send us the following statement of nitrate, issued under date of September 1st:

	1895.	1894.	1893.
	Bags.	Bags.	Bags.
Imported into Atlantic ports from West Coast S. A., from Jan. 1, 1895, to date	538,480	381,692	521,266
Imported into Atlantic ports from Europe, from Jan. 1, 1895, to date	.....	.....	16,712
	538,480	381,692	540,978
Stock in store and afloat Sept. 1, 1895, in New York	67,727	45,849	75,440
Boston	2,436	2,000	400
Philadelphia	3,910	.....	.....
Baltimore	2,500	7,000	3,500
Norfolk, Va	300	.....	.....
Charleston	590	.....	.....
To arrive, actually sailed	215,000	201,000	172,300
Vis. supply to Dec. 15, 1895	292,373	255,849	251,640
Stock on hand, Jan. 1, 1895	58,367	44,938	15,454
Deliveries past month	82,941	57,459	74,854
Deliveries since Jan. 1 to date	519,474	374,781	477,692
Total yearly deliveries	.....	701 202	754,560
Prices cur., Sept. 1, 1895	1·70	2·07½@2·10	1·62½@1·65

Included in the deliveries of 1893 are 9,500 bags shipped to European ports.

Liverpool. Sept. 4.

(Special Correspondence of Joseph P. Brunner & Co.)

The much talked of arrangement between the leading English ammonia soda makers was actually fixed up at the end of last week. As a result of this arrangement prices of soda ash have been advanced 10s. per ton, and soda crystals 5s. per ton.

Soda Ash.—Some business is reported at the advance, but the market is not active. The range for tierces, for any position, we quote as follows: Leblanc ash, 48%, £4@£4 5s.; 58%, £4 5s @£4 10s. Ammonia ash, 48%, £3 10s.@£3 15s.; 58%, £3 15s.@£4 per ton net cash. Bags 5s. per ton less. Soda crystals are now held at £2 7s. 6d.@£2 10s. per ton, less 5% for barrels, and a further advance is anticipated.

Caustic Soda is in moderate demand, and without change in values. For spot and forward delivery the range is about as follows: 60%, £6 5s.@£6 10s.; 70%, £7 5s.@£7 10s.; 74%, £8 5s.@£8 10s.; 76%, £9 5s.@£9 10s., all per ton, net cash.

Bleaching powder is selling in a quiet way at late rates, the range for hardwood packages being about £7 5s.@£7 10s per ton net cash, according to export market. It is reported that £7 7s. 6d. has been paid for an outside make of hardwood bleach for the United States for delivery over 1896. Chlorate of potash is still idle and nominally quoted at from 4½d.@4¾d. per lb., while buyers hold aloof.

Bicarb. Soda is firm at £6 15s. per ton, less 2½%, for the finest quality in 1 cwt. kegs, with usual allowances for larger packages. Sulphate of ammonia is dull at £9 12s. 6d.@£9 15s. per ton, less 2½%, for good gray 24 and 25% in double bags f. o. b. here, according to quality.

Nitrate of soda is in light request at £3 5s.@£8 10s. per ton, less 2½% for double bags f. o. b. here according to quality and quantity. Carb. ammonia, lump, 3½d. per lb.; powdered, 3¾d. per lb., less 2½%

NOTES OF THE WEEK.

Messrs. Brunner, Mond & Co.—The half-yearly meeting of this company was held on August 22d at Liverpool, Sir John T. Brunner in the chair. The report set forth that the profit on the half year amounted to £148,762, which with £89,143 brought forward a total of £237,880 to be dealt with. Dividends of 7% per annum on the preference shares and 30% per annum on the ordinary shares were recommended, £90,299 being carried forward to the next half-yearly account. The report was adopted.

MINING STOCKS.

Complete quotations will be found on pages 256 and 257 of mining stocks listed and dealt in at:

New York.	Colorado Springs.	Paris, France.
Boston.	Duluth, Minn.	Mexico.
Philadelphia.	Helena, Mont.	Shanghai, China.
N. Y. Coal Stocks.	N. Y. Industrials.	Valparaiso, Chile.
Denver, Colo.	Salt Lake, Utah.	
Aspen, Colo.	London, England.	

NEW YORK, Friday Evening, Sept. 13.

We must continue to report a listless mining stock market. There is no particular demand for any stock, and consequently there are no new features whatever to the market.

Late San Francisco advices are that the market there is improving, but thus far it has not affected the local exchange. Consolidated California & Virginia was quiet, only 200 shares being sold this week at $2.60@$2.70. Of Mexican 300 shares changed hands at 67@68c. An equal number of shares of Potosi was sold at 70c. There was a sale of 100 shares of Sierra Nevada at 84c., and 100 shares of Yellow Jacket at 45c. Of Union Consolidated 700 shares were sold at 21@5 c.

Of the California stocks Brunswick Consolidated was traded in to the extent of 3,000 shares at 8c.@9c. Standard Consolidated was in good request, total sales amounting to 1,500 shares at $1.75@$2.35.

The Colorado shares were in better request this week. Lacrosse was stationary at 13c. with sales of 1,000 shares; of Mollie Gibson sales of 2,100 shares at 60@65c. are reported, and of Portland 1,200 shares at $1.65@$1.75. Of Chrysolite, 200 shares changed hands at 12c. Other sales were: 800 shares of Iron Silver at 30c., and 900 shares of Isabella at 25c.@26c.

Of the Utah stocks Daly shows sales of 80 shares at $7@7.38, and Ontario of 150 shares at $10.

Boston. Sept. 12.

(From our Special Correspondent.)

This has been a dull week for copper stocks, and prices have continued to sag, with now and then a spurt on the upward side, but finally settling down to about the lowest prices of the month. Boston & Montana and Butte & Boston have been the most active, although Kearsarge and Osceola have followed closely. There is, however, a disposition to buy stocks at present prices on the idea that later on the market will improve.

Boston & Montana sold up to $93¼ at one time during the week, followed by a decline to $90, and a rally to-day to $90¾, closing at $90½. Butte & Boston broke down to $20¼, and closed weak at that price. The highest for the week was $22½.

Kearsarge has ruled quite firm at $22@$21, with a sale on one day at $20; but the stock rallied quickly and to-day sold at $21¾@$21¼. Osceola declined sharply on the report of the fire at the mine to $30, a loss of $8, followed by a reaction to $34¼, with later sales at $33.

Calumet & Hecla sold at $318 and later at $315, closing at $315½. Quincy sold at $150 and declined to $145, with later sales at $146. The scrip was heavy and sold down to $76½, a decline of $4½

Tamarack showed small sales at $160 and $158. Franklin was dull and declined from $22½ to $19½, with last sale at $20. Tamarack, Jr., lost the advance of last week and sold down to $25. Atlantic was weak and declined from $25 to $22, with later sale at $22½. Tecumseh sold at $4½ and declined to $3¾. Wolverine dropped to $8, closing at $8¼ better. Arnold sold freely at $3, Allouez at $1 and Bonanza at 50c. Centennial was quiet and on small lots sold off to $1¼.

The Gold stocks are not active, but are growing in favor. Santa Ysabel sold at $14 and $13¾, Santa Rosa at $2½ and Merced $40½@$41¾. Pioneer Gold Mining Company was not quoted. It was reported to day that the title to the property has been perfected and that the company will, in the near future, issue its stock and apply for listing the same on the Exchange.

Colorado Springs.

BY TELEGRAPH.

Messrs. Gardner & Co. wire us the closing quotations for the week ending September 12th as follows:

Name of Company.	6	7	9	10	11	12
Anaconda	.67	.66	.70	.71	.70	.71
Argentum-Juniata	.75	.77	.74½	.74¼	.73	.70
Consolidated	.17½	.18	.17½	.17	.16¼	.17
Isabella	.25½	.2 ½	.28		.2½	.26
Mollie Gibson	.63	.63	.64	.64	.60	.64
Portland	1.79	1.70	1.73	1.74	.74	.76
Summit					.28	.19½
Union	.23	.23	.22	.21½	.21	.21½

Salt Lake City, Utah. Sept. 7..

(Special Report of James A. Pollock.)

The mining stock market this week was not especially active, in fact there was every indication of listlessness and a general disinclination to trade. Operators seem to be sizing the market and waiting for something unusual to turn up to start the movement which all expect but desire to see in full motion before taking part in it.

There is no trading in Ajax, and there will be none until the assessment notice is officially published. For the benefit of the doubting I have it on reliable authority that the levy will be 5c. per share. The mine is in excellent condition, and the future of the property most promising. Alliance stock has been quiet of late, and there are no new developments worthy of note. There is nothing to be said in regard to Anchor. Bullion Beck is steady but quiet. A dividend of 50c. per share, $50,000, will be paid September 12th. There was no surety that Centennial-Eureka would pay an extra dividend on September 2d, as was anticipated, and as it has done for the past two months. Comstock is not very strong, despite newspaper reports to the effect that the report of the recent experts, examination was favorable.

The apparent indifference of the public to a stock that has such inherent good qualities as Daly is discouraging, that is, as to the discernment of the public. Daly West is gathering itself together for an upward turn. The stock must reach a higher value if the future is to be counted on at all. Horn Silver is not changing hands to any extent. The output of the mine is very heavy, and the present quarterly statement should be a very favorable one. Lucky Bill is being offered a trifly freely, and with a limited number of buyers in the market. Mammoth is in fair demand. With the absorption of available stock now on the market I look for the shares to touch much higher figures. There is considerable trading in Mercur, and there seems to be a good healthy demand for all the stocks that are offered. In Ontario the price continues to march upward, and the stock is quoted at $9.25 bid, and $11 50 asked. The advance was not quite as heavy as was expected, and I rather think it an evidence of weakness that will shortly show a reaction. There is practically no Silver King being offered, and the bidding has been advanced to $14 50. The regular monthly dividend of 25c. per share, $37,500, is payable to-day. Tetro is said to be in favorable ground, and the result of present development is being anxiously awaited by stockholders.

San Francisco.

SAN FRANCISCO, Cal., Sept. 13. (*By Telegraph.*) The opening quotations to-day were as follows: Best & Belcher, $1.10; Bodie, 12c.; Challar, 62c.; Consolidated California & Virginia, $2.80; Eureka Consolidated, 26c.; Gould & Curry, 51c.; Hale & Norcross, $1.60; Mexican, 74c.; Mono, 11c.; Ophir, $1.70; Sierra Nevada, 92c.; Union Consolidated, 62c.; Yellow Jacket, 43c.

London. Aug. 24.

(From Our Special Correspondent.)

The earlier part of the past week was spent in comparative lolness in the mining section of the stock exchange. This was chiefly on account of an absence of buying orders which enabled brokers to snatch a few days' holiday. During the past two days, however, buying has recommenced briskly, and after the completion of the present fortnightly account on Monday next there will be a further large increase in activity.

The scheme for establishing a bank by Mr. J. B. Robinson to which I have referred in previous letters has at last been settled, and the company has been registered. The name is the Robinson South African Banking Company and its capital is £3,000,000 in £4 shares. From the denomination of the shares and from the fact that two out of the four directors are French financiers, we are led to judge that the bank has been primarily started to assist French investments in South African stocks and that its method of business will be practically the same as that of the consolidated gold fields of South Africa.

On the other hand the scheme for establishing the Barnato Bank is still incomplete, and indeed it appears likely that some time will elapse before all points are settled. To begin with, Mr. Barnato was a good deal hindered by anticipatory speculation, and he was obliged to abandon his original propositions in order to make these dealings null and void. Then difficulties arose with the group of Austro-Hungarian financiers for whose special benefit the bank was to be started. It is possible that the scheme may be postponed.

In South African shares the most noticeable features have been in Rand mines and the diamond shares. The former have beaten all records by the £1 share advancing to £38, chiefly on French buying. For some time, as I have mentioned before, these shares have been talked to £50 and it is not at all improbable now that French buying has commenced in earnest that further sensational rises will be made. In diamonds, both DeBeers and Jagersfontein have had considerable advances, chiefly on account of the favorable contracts made for the disposal of the output. In the case of the DeBeers, it is probable that the increased price obtained per carat will be sufficient to raise the dividend at least 5%.

In other departments of mining speculation things have been comparatively uneventful. West Australians are dull. There have been only unimportant fluctuations in Broken Hill Proprietaries. In the American section efforts are still being made to introduce Banner Gold, and the stock is quoted at a slight premium. Holcomb Valleys have been actively inquired for, but De Lamars and Springdales are down.

Paris. Sept. 1.

(From Our Special Correspondent.)

The most notable feature of our market here continues to be the increase of speculation in all directions. The investment buying of securities has not decreased, but is rather extending, and to this is to be added a good deal of purchasing for speculation entirely. Altogether both "Parquette" and "Coulisse" are seeing more active times than they have had since 1891; and to their work is to be added the transactions which go to London and are not recorded here.

In Transvaal stocks there is fully the usual interest, and this is now extending from the Witwatersrand companies to the outside districts. Moreover, the new companies operating in Mashonaland are drawing much attention, while especial favor is given to the shares of the Chartered Company. It appears possible that this particularly British society may pass under the control of French investors. From this some political complications may result; but we shall see.

In our own market the copper shares are very active and strong, with no signs of a reaction. The improvement is extending to the other metals also; as lead, zinc and tin show increases in price the different companies gain ground also. So far as one can foresee, these gains are to be permanent; that is, the reaction from the extreme low prices of last year will last for two or three years to come, and that is permanent for a speculator.

In spite of the somewhat discouraging explanations of M. Balfour in the British Parliament, quite a speculation in the silver stocks is developing, and Huanchaca shares show an increase in price. Other silver companies, which have not been heard of for years, are coming forward again and showing quotations.

Russian securities continue to find more and more favor, and it seems quite possible, as I wrote you last week, that we are to have a Russian furore. I hear of more than one project which is being made ready to offer for investment. Why not? A great part of this northern territory is really a new country, in spite of its ancient place in history. Even your own country presents now fewer opportunities for new development than can be found beyond the Ourals, in the somber valleys of the Trans-Beikel and the more fertile regions of the Amour.

To record some evidences of our financial condition I give you below some figures—from "l'Economiste Francais" on the Bank situation and on prices for August 31st for this year and in contrast for last year and for 1891:

Bank of France:	1891. Fr.	1894. Fr.	1895. Fr.
Circulation	2,999,000,000	3 363,600,000	3,340,900,000
Reserve	2,627,200,000	3,170,700,000	3,315,200,000
Loans	438,600,000	428,700,000	437,400,000
Cur Accounts	698,900,000	709,400,000	1,010,500,000
Discount rate	3%	2½%	2%
Rate on Treasury notes	2%	1½%	1½%
Price of 3% rentes	Fr 95.95	Fr.103 75	Fr.102.05
Wheat, per quintal	26'10	18'53	18 53

In the loans and current accounts of the Bank of France are included the transactions with the government, as well as with individuals.

As showing how large the African business is with us I may note that the committee which regulates dealings on the "Coulisse," where mining shares are dealt in, has decided to order a special settling day for those shares on the 1st of each month, so that the usual settling day, the 2d, may be left free for the adjustment of accounts in other securities dealt in.

I hear, by the way, that the Creusot Company is about to send representatives to the Transvaal with a view of securing some of the trade in machinery which has hitherto gone to English, American and German houses.

At the meetings this month of the departmental councils, a number of these bodies passed resolutions denouncing the concessions made to English companies of phosphate deposits in Algeria and Tunis, and urging that their working be retained in French hands. In some cases it was urged that the government should undertake their exportation.

Politically there is nothing new; which is, after all, the best condition of affairs one can report, if it only continues. AZCTE.

MEETINGS.

Butte & Boston Mining Company, annual meeting at the office in Butte, Mont., October 2d, at 12 noon. Transfer books close from September 11th to October 3d.

Cœur d'Alene Silver-Lead Mining Company, special meeting, at the office in Butte, Mont., October 12th, at noon, to vote on the transfer of the property to a new company.

Consolidated Golden Gate and Sulphuret Mining and Development Company, at the office in San Francisco, September 12th, at 11 a. m.

Gray Eagle Mining Company, annual meeting, at the office in San Francisco, September 18th, 1 p. m.

Mono Gold Mining Company, annual meeting at the office in San Francisco, September 19th, at 1 p. m.

DIVIDENDS.

Church Gold Mining Company, dividend No. 8 of 5c. per share, paid September 4th.

Silver King Mining Company, of Park City, Utah, dividend of 25c. per share ($37,500), paid September 7th.

ASSESSMENTS.

Name of Co.	Loc'n.	No.	Dlnq.	Sale.	Amt.
Evening Star	Cal	19	Sept. 10	Sept. 27	.01
California	"	5	Aug 31	" 21	.01
Con. Imperial	Nev	3	Sept. 12	Oct. 3	.01
Bullion	"	5	" 5	" 7	.10
Gould & Curry	"	7	Aug. 7	Sept. 28	.15
Hale & Norcross	Nev.	10	July 3	" 25	.25
Kentuck Con	"	1	Sept. 19	Oct. 1	.10
Kimberly	S. D.		" 10	" 1	.002
New Tintic	Utah		" 10	Sept. 30	.50
Osborn Hill	"		" 8	" 29	25
Rose Kimberly	Cal		" 6	" 27	.02
San Vicente	Mex	4	" 7	Oct. 5	.12½
Sierra Nevada	Nev.	109	" 30	Sept. 23	.25
South Eureka	"	19	" 24	" 23	.40
Taylor, H. P.	"		May 31	" 26	.20
U. S. Grant	S. Dak.	6	Aug. 3	" 22	.00½

DIVIDENDS PAID BY MINING COMPANIES AUGUST AND YEAR 1895.

NAME OF COMPANY.	Location.	Paid in August.	Paid in since Jan. 1.
Am Dev. & Mg. Co	Mont		$24,340
Alaska-Mexican	Alaska		25 500
Alaska Treadwell	"		150,000
Amethyst	Colo		36,000
Bald Butte	Mont		12.500
Bangkok-Cora Belle	Colo	$6,000	48,000
Belden, F E. Mica	N. H	4,000	54,000
Boston & Montana	Mont		300,000
Bullion-Beck & Champion	Utah		275.000
Calumet & Hecla	Mich	500,000	1,0 0,000
Centennial-Eureka	Utah	30,000	240,000
Champion	Cal	3,400	27.200
Con. Cal & Va	Nev		162,000
Copper Queen Con	Ariz		150,000
Coptis	Nev		1.000
De Lamar	Idaho	100,000	444,000
Elkhorn	Mont		50,000
Elkton	Colo		7,500
Forepaugh	"		16,000
Gold & Globe	"		11 250
Golden Fleece	"	6,000	48,000
Hecla Con	Mont	15,000	115,000
Homestake	So. Dak.		218,750
Hope of St. Louis	Mont		10,000
Horn Silver	Utah		110 000
Iron Mountain	Mont	10,000	90,000
Jackson	Cal		2,000
Kennedy	"	48,000	184,000
Mayflower Gravel	"	6,000	48,000
Mercur	Utah	25,000	150,000
Mollie Gibson	Colo		50,000
Montana, Ltd	Mont		82.500
Mont. Ore Purchasing Co.	"		120.000
Morning Star Drift	Cal	16,800	134,400
Moulton	Mont		30,000
Mt. Rosa	Colo		5,000
Napa Con. (Quicksilver)	Cal		70,000
Nugget	Colo		5,000
Osceola Con	Mich		100,000
Portland	Colo		120,000
Quincy	Mich	200,000	600,000
Silver King	Utah	37,500	112,500
Smuggler	Colo		350,000
Standard	Cal		30,000
Tamarack	Mich		200,000
Union	Colo		12,500
Utah	Utah	1,000	11,000
Victor	Colo	20,000	180,000
Victor L. & M. Co	"		6,000
War Eagle	B C	50,000	132,500
W. Y. O. D	Cal	3,000	24,000
Total		$1,081,700	$6 365,440

Readers of the "Engineering and Mining Journal" will confer a favor on the publishers if they will notify the "Journal" of any errors or omissions in the above table.

STOCK QUOTATIONS.

NEW YORK.*

NAME OF COMPANY.	Location.	Par val.	Sept. 7. H.	Sept. 7. L.	Sept. 9. H.	Sept. 9. L.	Sept. 10. H.	Sept. 10. L.	Sept. 11. H.	Sept. 11. L.	Sept. 12. H.	Sept. 12. L.	Sept. 13. H.	Sept. 13. L.	Sales
Adams	Colo.	10													
Best & Belcher	"	100													
Bost. & Mont.	Mont	25													
Brunswick	Cal.	2			.09						.09	.08	.09		3,000
Bullion	Nev.														
Bulwer	Nev.	10													
Chrysolite	Colo.	50									.12				200
Comstock scrip	Nev.	100													
do. T. bonds	"														
do. T. stock	"	50													
Con. Cal. & Va.	"	100			2.70				2.60						200
Daly	Utah.	20					7.875	7.00							80
Father de Smet	S. D.	100													
Excelsior	Cal.	10													
Gould & Curry	Nev.	100													
Hale & Norcross	"	100													
Homestake	S. Dak.	100													
Horn Silver	Utah.	25													
Iron Silver	Colo.	100			.30								.30		800
Isabella	"	10											.26	.25	900
Lacrosse	"	10			.13										1,400
Leadville	"	10													
Little Chief	"	50													
Mexican	Nev.	100			.67				.68						300
Mollie Gibson	Colo.	5					.65				.60		.65	.63	2,100
Ontario	Utah.	100							.10						150
Phoenix of Ariz	Ariz	100													
Portland	Colo.	1					1.75				1.70	1.65			1,500
Potosi													.70		300
Sierra Nevada	Nev	100			.84										100
Standard Con	Cal.	20					2.55				2 35		1.8	1.75	1,500
Tamarack	Mich.	100													
Union Con	Nev.	25							.50				.22	.21	700
Victor	Colo.	100													
Yellow Jacket	Nev.	5			.45										100

* Official quotations N. Y. and Con. Stock and Petroleum Exchanges.
Total shares sold, 12,930.

BOSTON, MASS.*

NAME OF COMPANY.	Location.	Par val.	Sept. 6. H.	Sept. 6. L.	Sept. 7. H.	Sept. 7. L.	Sept. 9. H.	Sept. 9. L.	Sept. 10. H.	Sept. 10. L.	Sept. 11. H.	Sept. 11. L.	Sep. 12. H	Sep. 12. L.	Sales.
Allouez	Mich.	25							1.00				1.00		250
Arnold	"	25	3 12				3.00		3.00						1,200
Atlantic	"	25					21 50	23.50	24.00	22.50	23.00	22.50			964
Bonanza	"	10	.50								98.50				1,700
Bost. & Mont	Mont.	25	93. 3	92.38	93.50	92 75	93.50	91.55	92.25	91.38	91.00	90.00	90.75	9 .00	11,348
Breece			.23												500
Butte & Bost	Mont	25	22.25	21 75	21.00		22.13	21 25	22.00	21.2	22.00	20.50	20.75	21.50	4,988
Cal. & Hecla	Mich.	25	318		318		318	316	315		315½		318		71
Catalpa	Colo.	10													
Centennial	Mich.	100	2.00								1.50	1.25			125
Copper Falls	"	25													
Dominion Coal	N. S.	10	6.50	6.13	7.00		7.00	6.75	7.00	6.75	17.0				3,696
do. pref	"	25	95.0								98.50				104
Franklin	Mich.	25							21.50	19.50			20.00		2 0
Kearsarge	"	25	22.0	21.50	21.88	21.75	21.75	21.50	21.50	21.00	21.50	20.63	21.38	21.00	3,465
Merced	Cal														
Osceola	Mich.	25	37.5				33.50	33.00	34.25	33.25	33.50	33 0	33.00		4,470
Quincy	"	25					150	148	148		148	145	146		268
do. scrip	"						81.00		81.00	79.00	80.00	76.50	80.0		283
Santa Ysabel	Cal.	5	14.00	13.50											50
Tamarack	Mich.	25	160				159	158					156		75
Tamarack, Jr.	"	25	27.50	26.7			26.50				25.50	25.00			530
Tamarack, scrip	"														
Tecumseh	"		4.50	4 25			4 00				4.00		4.00	3.88	700
Wolverine	"	25	8 50	8.25			8.38	8.25	8.00		8.13	8 00	8.25	8.00	1,250

* Official quotations Boston Stock Exchange. Total shares sold, 35,578.

COLORADO SPRINGS MINING STOCKS.*

NAME OF COMPANY.‡	Par val	Aug. 19. H.	Aug. 19. L.	Aug. 20. H.	Aug. 20. L.	Aug. 21 H.	Aug. 21 L.	Aug. 22. H.	Aug. 22. L.	Aug. H.	Aug. L.	Aug. 24. H.	Aug. 24. L.	Sales.
Alamo	$1	.04½	.04	.04½	.04¼	.04¾	.04⅞			.05	.04¼	.04½	.04½	13,600
Anaconda	5	.50	.49½	.50	.51	.50	.49	.50	.50	.52½	.50½	.55	.52½	22,700
Argentum J	2	.95	.91	.78½	.74	.80	.79			.83¼	.83	.80	.80	31,459
Bob Lee	1	.01	.0085	.01	.01	.0	0.95	.01	.01	1	.01			83,5
Crippie C	1	.14¾	.12	.14¾	.14¼	.16¾	.14¼	.17	.16¾	.19½	.16¾	.19¼	.18¾	245,750
C. O. D	1													
Cr. & C. C	1	.03¾	.03	.03¼	.03	.03¾	.03¼	.03¼	.03½	.03¾	.03¼			82,000
Fanny R	1									.07½	.07¼			5 0 0
Franklin	1	.07	.007			.070	.070							22,0
Gold & Gl.	1	.14	.13¾	.14¾	.4¾	.14	.14	.14	.14	.14	.14			2,500
Isabella	1	.23¾	.22	.24	.23¼	.23½	.23	.23½	.23¼	.24½	.23¾	.25	.24½	47,7
Mollie G	5	.66	.65	.65¾	.66	.64	.63			.63	.62	.59	.59	11,167
Mt. Rosa	1	.10½	.10	.10½	.10	.10	.10	.10	.10	.10	.09¾	.09½	.09½	37,8 0
Pharmacist	1	.05¾	.04¾	.04¾	.04¾	.05	.05			.5¾	.05	.05	.04¾	99,000
Portland	1	1.96	1.75	1.96	1.90	1.92	1.90			1.9	1.90	1.66	1.96	24,350
Specimen	1	.15	.14			.14½	.14			.13½	.13¾			30, 0
Summit	1	.11	.10	.11¾	.10¾							.11¾	.11¾	4,6
Union	1	.29½	.29	.29¾	.24¾	.28	.27½	.28¼	.27¾	.27	.26	.26¾	.25¾	78,000
Work	1	.06¾	.06¼	.06¾	.06¼	.06¾	.06¼	.06¾	.06¼	.06¼	.06¼	.06¼	.06¼	23,700

* Official quotations Colorado Springs Mining Stock Association ‡ All the companies are located in Colorado. Total sales, listed, 820,217; unlisted, 179,833.

COLORADO SPRINGS, COLO.*

NAME OF COMPANY.†	Par val	Aug. 26. B.	Aug. 26. A.	Aug. 27. B.	Aug. 27. A.	Aug 28. B	Aug 28. A.	Aug. 29. B.	Aug. 29. A.	Aug. 30. B.	Aug. 30. A.	Aug. 31. B.	Aug. 31. A.	Sales.
Aola	$1	.01225	.014	.013	.014	.015¾	.02	.0 3½	.013¾	.01¼	.019¾	.01¼	.019¾	48,500
Anaconda	5	.76	.77½	.81	.82	.86	.74¾	.76½	.78	.74½	.75	.80¼	.73	2 ,2 0
Anchoria-L	1	1.02½		1.00	1.50		1.25	1.0	1.10	1.0		1.0 0		400
Argentum J	2			.77	.95	.76	.40	.80	.82	.78	.80			2,10
Bob Lee	1	.0125	.0135	.01425	.0 450	.013	.0145	.01350	.01450	.01450	.014¾	.014	.015½	9 ,00
Ben Hur	1	.07¾	.07¾		.07½	.06¾	.07½	.06¾	.7¾	.07¼	.07¼	.07½	.07¾	46,0 0
Blue Bell	1	.04	.04	.04¼	.4¼	.04¾		.04¾	.04⅝	.04¼		.04¾	.4¼	
Buckhorn	1	.03¾	.03¾	.03¾	.03¾	.0 ¼	.03¾	.03¾	.03¾	.03¾	.03¾	.03¾	.03½	24,500
Consolid'd.	1	.18¾	.19¼	.18¾	.18¾	.16¾	.16¼	.16¾	.17¼	.18¾	.18¼	.18	.18¼	87,700
Cr. & C. C.	1	.0 ¾	.0 ¼	.02¾	.03¼	.03¾	.04¼	.03¾	.03¾	.03¾	.03¾	.03¾	.03¼	34,500
Colo.C.& M.	1	.02¾	.02¾	.02¾	.02¾	.0 ¾	.02¾	.02¼	.02¾	.02¼	.12¾	.2¾	.02¾	51,500
Columbine	1	.02¾	.2¾	.02¼	.02¼	.02¼	.02¾	.0 ¾	.03	.02¼	.02¾	.02¼	.12¾	23,900
Copper M		.02¾	.02¾	.02¼	.02¼	.02¼	.02¼	.02¼	.03¼	.02¼	.02¾	.02	.02¼	32,900
Enterprise	1	.03¼	.03¾	.03¼	.03¾									
Eureka		.0075	.010	.008	.010	.0 8	.010	.009	.010	.0 8		.0085	.0 9 0	4,000
Fanny R	1	.0777	.08	.0075	.8	.0750	.008	.0 850	.0075	.00850	.0075	.00650	.00725	21,000
Gold King		.38½	.40	.38	.40	.38	.40		.39	.39	.42	.41	.41¾	1,45
Gold Eagle	1	.012	.015	.012	.013	.013	.01¾	.012		.01¾	.01¾	.014	.015¾	4,800
Gold & Gl.	1	14	.14½	.13¾	.14	.13¾	.14	.13¾	.14	.13	.13¾	.13¾	.14	5,150
Gould	1	.0 ¾	.06¾	.06¾	.06¾	.06¼	.06¾	.6	.06¾	.06¾	.06¾	.6¾	.6¼	86,2 5
Gold Stand	1	.04¾		.4¾		.04		.04	.06¾	.07	.05¾			26,000
Golestone	1	.0 85	.0085	.008	.00850	.0 850	.009	.00950	.010	.0095	.01050	.0 9 0	.0975	113,000
Golden Age	1	.011	.011	.01150	.01175	.01150	.012	.012	.01225	.01275	13	.012	.012 5	265, 00
Gran. Hill	1	.02	.02¼	.02¼	.02¼	.02¼		.02¼	.02¾	.02	.2		.02¼	6,5 0
Jack Pot		.05	.0 ¼	.05¼	.05¾	.05¼	.05¾	.05¼	.05¾	.05¼	.04¼	.05½	.05½	134,125
Keystone	1	.04¾	.5	.04¾	.05	.04¾	.05	.04½	.04¾	.04½	.04¾	.4¾	.4¾	60,000
Magna Ch.	1	.02¾	.02¼	.02¼	.02¼	.02¼	.02¾	.02	.02¼	.2	.2¾	.02	.02¼	29,0 0
Mollie G	5	.57	.59	.73	.75	.76	.80	.76	.78	.75	.80	.68½	.72	7,750
Mt. Rosa	1	.09¾	.0			.09¾	.10	.09	.09¾	.08¾	.9¾	.09		8,000
Mutual	1	.05	.05¼	.05	.05½	.05	.06	.05¾	.05¾	.5¾	.05¾	.5¼	.0 ¼	27,500
Nugget	1	.11¾	.11¾	.11¾	.11¾	.11¾	.11¾	.10¾	.11¾	.11¾	.12	.10	.11¼	11,000
Ophir	1	.05	.06¾	.05	.06¼	.5¾	.06	.6¾	.07	.05¾	.6¼	.5¾	.6¼	6,500
OrphanBell	1	.9¼	.1 5	.09¾	.10½	.09¾	.10¼	.09¼	.9¾	.09¾	.10	.09¼	.10	22,8 0
Pharmacist	1	.4¾	.4¾	.01¾	.4¾	.4¼	.04¼	.04¾	.5¾	.04¾	.04¾	.4¼	.04¾	3 ,50
Portland	1	1 93	2.0	1 92	1.98	1.93	1.95	1 90	1.92	1.86	1.95	1.85	1.95	31,700
Silv. State	1	.2¼	.02¼	.02¾	.02¼	.2¼	.02¼	.01¾	.02¾	.02¼		.02	.02½	100,0 0
Sacramento		.06¾	.07	.7	.07¾	.06¾	.06¾	.05¾	.05¾	.05¾	.06	.05¾	.05¾	506,400
Summit	1	.10¾	.12½	.11	.11¾		.11½	.10	.11¾	.12	.12¼	.12	.12½	20,0 0
Santa Fe	10	.00950	.008	.00850	.007			.006	.007	.0 9	.01025	.009	.00850	69,500
Star of W	1	.08	.0 85	.08	.0 825	.00750	.00850	.008	.00825	.00850		.00825	.00850	20,500
Union	1	.25¾	.26¼	.24	.25¼	.24¾	.25¾	.23¾	.24¼	.24¼	.24¾	.23¾	.24	24,920
UnionLeas	1	.45	.50	.45		.45	.50	.44		.40	.50	.43		
Virginia M	1	.02	.02¼	.01¾	.02¼	.02	.02¼	.02¼	.02¾	.02	.02¼	.0 ¼	.02¾	51,917
World	1	.01¾	.02	.02¼		.02¼		.02¾	.03	.02¼	.03	.02	.02¼	2,000
Work	1		.06¼	.06¼		.6¼	.06¼	.06¼	.7	.06¼	.06¾	.03¼	.06¾	8,000

* Official quotations Colorado Springs Board of Trade and Mining Exchange. † All the companies are located in Colorado. Total shares sold, listed, 2,415,867; miscellaneous, 1,391,120.

COAL AND COAL RAILROAD STOCKS.*

NAME OF COMPANY.	Par value.	Sept. 7. H.	Sept. 7. L.	Sept 9. H.	Sept 9. L.	Sept. 10. H.	Sept. 10. L.	Sept. 11. H.	Sept. 11. L.	Sept. 12. H.	Sept. 12. L.	Sept. 13. H.	Sept. 13. L.	Sales
Balt. & Ohio	100			66¾	66½			66	65¾					755
Ches. & Ohio	100			21¾	21¾	2 ¾	20½	20¾	20	20¼	19½	20¼	19¾	7,250
Col.C. & I.Dev	100	7¾	7¼	7¾	7¼	7¾	7¾			7¾	7¼			2,605
Col. Fuel & I.	100	40	39	41¼	39¾	41¾	4 ¼	41	39¾	40	39	39½	37¾	18,759
do. pref.														10
Col.,H.V.&Tol	100					24¼		24¾	24¾	24½	24½			520
do. pref.	100													
Col. & H.Coal	100			3¾										50
Del. & Hud. C	100	134		131¾	131¾	132½	131½	132½	131½	132¼	130¾	131½	130½	4,080
Del., L. & W.	50			163¾	163¼	163¾		163¾		163½	163¾			2,100
Lake Erie&W	100	26½		25¾	25¾	25½						23½	24¼	1,350
do. pref	100	80½		80¾	80							78		605
Morris & Es'x														
N. J. Central	100	114		114½	113¾	113¾	112¾	112	111¾	113½	111	112	110	5,107
N. Y., L.E.&W	100	9		8¾		9	8¾	9	9	9¼	9	9	8¾	1,820
do. pref.	100	25				23¾								600
N.Y.,Susq.&W	100			14	13¼			13	12¾	13	12¾	12¾	12¾	2,116
do. pref.	100	36½		36	35½	35¼	34½	34¾	33¾	35	33¾	35	33½	7,719
Norfolk & W.	50	4		4½		4¼	4¾							340
do. pref.	50									14¾				100
Phila. & Read.	50	21¾	21¾	21¾	19¼	20¼	19¾	20¼	20¼	18¾	19¼	18¾	18¾	12,670
Tenn. C. & I.	100	44¾	43⅝	46½	44¾	46¾	41¾	45¾	42¾	45⅝	42½	43¾	41¾	112,154
do. pref.	100	100		102¾	100¾									860
Wheel. & L. E	100	16¾	16¾	16¾	16¾	16¼	16¼	16	16	16¾	15¾	16¾	15¾	9,085
do. pref	100	5 ¾		16¾				50¾	50	50¾		50¾	50	630

* Official quotations N. Y. Stock Exchange. Total shares sold, 305,964.

INDUSTRIAL AND TRUST STOCKS.*

NAME OF COMPANY.	Par value.	Sept. 7. H.	Sept. 7. L.	Sept. 9. H.	Sept. 9. L.	Sept. 10 H.	Sept. 10 L.	Sept. 11. H.	Sept. 11. L.	Sept. 12. H.	Sept. 12. L.	Sept. 13. H.	Sept. 13. L.	Sales
Adams' Exp	100	150				150	149	149¾	149	148				113
Am. Cot.Oil.	100	24		25	24	24¾		24¾	23	24	22½	22½	22	1,475
do. pref.	100	72½				72¾		73	71¾	73	72¾	71¾		2,900
Am. Exp.	100	115		114¼				115		114¼				92
Am. Sug. Rf.	100	113¾	112½	113½	110¾	111¾	110¼	112¾	110¾	113¾	110¾	107¼	104¾	221236
do. pref	100	103		103	101½	102	101¾	101¾	101¾	101¾	101¾	99¼		2 526
Edison E. Ill	100											99¾	96¾	3 0
General Elec	100	40¾	39⅜	41	39	39¾	38½	39¼	38	38¾	38¼	38	37¼	48,030
Nat Lead.	100	35¾	35¼	35¾	3 ¼	35½	35	35	34½	35	34¾	34¾	33¼	8,799
do. pref	100	91¾		92	90¾	92				91¾		91		624
Nat.Lins.Oil.	100					26½				25				300
U.S.Cordage	100													
do. pref	100													
do. gtd.	100													
U.S. Express	100							47½						0
U. S. Rubber	100	41		40¾	40¼	40¾		40¾	40¾	40¾		40	39¾	1,763
do. pref	100	94¾	94¼	94½		94¾		94¾		94¾				393
Wells Fargo	100									114				5
West. Union	100	94¾	94	94¼	93¼	93¾	93¾	93¾	93¼	94¼	93¾	93¾	92¾	13,787

* Official quotations N. Y. Stock Exchange. Total shares sold, 304,302.

HELENA, MONT.* Week ending Aug. 24.

NAME OF COMPANY.	Location.	Company's office	Par value.	Bid.	Asked	Shares sold.	Price	Date.
Am.Dev.&M.Co.	Silv.Bow Co, Mont.	Butte, Mont.	$1	$2.00	$2.50			
Bald Butte	L.& Cl'ke Co., "	Helena "	1	3.50	4.00	700	3.25	Aug. 22
Benton Group	Meagher Co. "	W.Sph. S.Mont	5	.10	.15			
Combination	" "	" "	10	.60	.65			
Elkhorn	Jefferson Co. "	London, Eng.	£1	6s. 6d.	7s. 6d.			
Hel'a & Frisco	Snoshone Co , Id.	" "	5	2.10	2.50			
Iron Mountain	Missoula Co., Mont.	" "	10	.72½	.75	4,500	.60-70	Aug.
Ontario	DeerLodgeCo. "	" "	1	1.00	1.20	185,100	.75	Aug. 12
Plegan	L. & C. Co., "	Marysville, "	5	.15	.25	5,000	.15	July.
Royal Gold	D'r LodgeCo., Mont	D'r Lodge, "	5	.40	.60			

* Special report of Samuel K. Davis. Total shares sold, 8,000.

ASPEN, COLO.* Week ending Sept. 6

NAME OF COMPANY.	Location.	Par value.	Bid.	Asked	Shrs.s'ld	Price.
Alta Argent	Aspen, Colo.	$1.00	$0.08½	$0.09	27,500	$0.09
Argentum-Juniata	" "	2 00	.76¾	.78	5,000	.78
Aspen Contact	" "	5.00	.25	.26		
Aspen Deep Mining	" "	1.00	.08	08½	32,000	.08½
Best Friend	" "	1.00	.04¾	.04¾	11,000	.04¾
Bi-Metallic	" "	1.00	.02	.02⅝	1,000	.02½
Bushwhacker	" "	1.00	.05	.05½	3,000	.05½
Caverhill Consolidated	" "	1.00	.20	.20	18,500	.20
Della S	" "	5.00	.68	.70	8,000	.70
Gold Valley Placer	Routt Co.,	1.00				
Mineral Farm Consolidated	Aspen, "	1.00	.05	.06	20,000	.06
Mollie Gibson	" "	5.00	.63	.65	1,200	.65
Old Colony Gold	Taylor River, "	1.00	2.00	2.00	2,700	2.00
Sheep Mt. T. & M	Crystal, "	1.00				
Smuggler	Aspen. "	1.00	1.40	1.50	1,800	1.50

* Special report of Arkell, MacMillan & Stewart. Total shares sold, 131,800.

DENVER, COLO.* Week ending Sept. 7.

NAME OF COMPANY.	Location.	Par value.	Opening	Highest.	Lowest.	Closing. Bid.	Closing. Ask.	Sales.
Alamo	Cripple Creek, Colo.	$1	.04	04¼	.03¾	.04	04¼	41,600
Amity	Leadville, "	1	.05	.07½	.05	.06½	.07½	84,000
Anaconda	Cripple Creek, "	5	.65¾	.75	.60	.65	75	5,300
Aola	" " "	1	02	.02¾	.01¾	.01¾	.02	72,000
Argentum Juniata	Aspen, "	1	.77	.80	.75	.75	.76¾	1,000
Adie C			.09¾	.08¾	.07	.08	.08¾	291,000
Bangkok Cora Bell	Leadville, "	1	.13½	13¾	.12½	.12½	.13¾	12,800
Bankers			.08	.11¾	.08	.08½	.09	37,600
Big Six	" " "	1	.06¾	.06	.05¾	.06	.08	5,100
Boston-Idaho			.23	.27	.24	.24	.27	
Cripple Creek Con	Cripple Creek, Colo.	1	.17¾	.19	.15	.15¾	.18¾	2,700
Creed & Cripple Creek	" " "	1	.04¾	.05	.04¼	.04¼	.04¾	12,000
Forepaugh	Leadville, "	1	.25	.50	.25	.25	.50	
Garfield Grouse	" " "	1	.03¾	.037	.03¾	.03¾	.03¾	338,700
Gold & Globe	Cripple Creek "	1	.14	.16	.14	.16	.14	
Gold Standard			.05¾	.08	.05¾	.07¾	.07¾	90,100
Isabella	Cripple Creek		.26¾	.26¾	.24	.24	.26¾	
Justice			.07	.09	.07¾	.07¾	.08¾	37,000
Mollie Gibson	Aspen, "	5	.68	.72¾	.60	.62	.64	3,100
Mt. Rosa	Cripple Creek, "	1	.08¾	.09½	.08	.08½	.09¼	9,000
Pharmacist	" " "	1	.04½	.05	.04	.04¾	.04¾	5,000
Portland		1	1.50	1.74	1.31	1.76	1.79	
Smuggler	Aspen "	1	1.41	1.41	1.38		1.38	
Union Gold	Leadville, "	1	.20¾	.23	.18¾	.21¾	.23	1,300
Union Leasing	Cripple Creek, "	1	.40½	.50	.40	.43¾	.46	100
Work		1	.06¾	.06¾	.06	.06¾	.06¾	49,700

Clearing House Report, Colorado Mining Stock Exch'ge. Total listed, 1,097,500; unlisted, 405,850.

ST. LOUIS, MO., STOCKS.

NAME OF COMPANY.	Location of Works.	Company's Office.	Par value.	Bid.	Asked.	Last Dividend.
Central Lead Co	Flat River, Mo...	St. Louis	$100	$30	$30	
Cons. Coal Co			100	20	22	June, '95, 1 p. c.
Doe Run Lead Co	Doe Run, Mo.....	"	100	80	100	June, '92, 2
Kan. & Tex. Coal			100	64	66	
St.Joseph Lead Co	Bonne Terre, Mo.	New York	10	8	.0	July, '95 1½ p. c.

PITTSBURG, PA.* Sept. 12.

NAME OF CO.	Par	Sale.	Bid.	Ask.
GAS STOCKS:				
Allegheny	$100	$49¼	$48½	$50
Chartiers Valley	100			
People's Nat. Gas	50		30	
People's Nat. Gas and Pipeage	25	14	13⅝	14¼
Pennsylvania	50		5	
Philadelphia	50	15	14½	15
Weeling	50		17⅜	19
MINING STOCKS:				
Lustre	10		10	11¾

*Official quotations Pittsburg Exchange.

DULUTH, MINN.* Sept. 7.

NAME OF CO.	Par	Price	Bid.	Asked
Adams Iron	$10		$1.00	$5.00
Biwabik I. M.	100	$20.00	20.50	21.00
Clev.Cliffs Iron.	100		38.00	40.00
Great No. M	100		1.75	2.00
Great West. M.	100		1.00	1.50
L. Sup. Con. M.	100	15.00	15.50	16.00
L. Sup.(Marq'te)	25		25 00	
Minnesota Iron.	100	66.00	67.50	70.00
Mes. Chief Iron.	100		2.00	2.25
Mountain Iron.	100	48.00	50.00	52.00
Ohio Mining	100	4 00	4.00	5.00

* Official quotations Duluth Exchange.

LONDON. Aug. 24.

Name of Company.	Par value.	Quotations. Buyers	Sellers
AMERICANS:		£ s. d.	£ s. d.
Alaska-Mexican	£1	1 15 0	2 0 0
Alaska Treadwell	5	4 15 0	5 0 0
De Lamar	1	1 0 6	1 1 6
Elkhorn	1	5 6	6 6
Harquahala	1	2 9	3 3
Holcomb Valley	5s.	1 9	2 3
Jay Hawk	£1	1 0	2 0
Montana	1	10 6	11 6
New Guston	1	12 6	15 0
Palmarejo (Mex.)	1	2 9	3 3
Plumas-Eureka	2	8 9	11 3
Poorman	5s.	3 0	3 3
Richmond	£5	17 6	1 2 6
Sierra Buttes	2	8 9	11 3
Springdale	4s.	1 9	2 3
SOUTH AMERICANS:			
Colombian Hydraulic	£1	10 0	12 6
Frontino & Bolivia	1	1 7 6	1 10 0
Tolima, A shares	5	7 15 0	8 5 0
" B "	5	6 15 0	7 5 0
COPPER STOCKS:			
Cape Copper	2	2 5 0	2 7 6
" " preferred	2	2 2 6	2 7 6
Copiapo	2	2 2 6	2 5 0

Name of Company.	Par value.	Quotations. Buyers	Sellers
COPPER STOCKS:		£ s. d.	£ s. d.
Rio Tinto	£10	18 0 0	18 2 6
Tharsis	2	5 2 6	5 7 6
AUSTRALIANS:			
Bayley's Reward	1	7 6	8 6
Broken Hill Propriet'ry	8s.	1 15 0	1 17 0
Mt. Morgan Gold	17s. 6d	2 15 0	2 17 6
INDIANS:			
Champion Reef	£1	4 15 0	4 17 6
Mysore	1	2 16 3	2 18 9
Nundydroog	1	1 17 6	2 0 0
Ooregum	1	3 6 3	3 8 9
" preferred	1	3 13 9	3 16 3
SOUTH AFRICANS:			
British S. Africa Co	1	7 2 6	7 5 0
City & Suburban	4	26 0 0	26 10 0
Crown Reef	1	12 0 0	12 5 0
De BeersCon.(diam'nd)	5	27 7 6	27 10 0
Durban-Roodepoort	1	7 17 6	8 2 6
Ferreira	1	18 0 0	18 10 0
Geldenhuis Estate	1	6 17 6	7 0 0
Jagerstfontein (diam'd)	5	10 15 6	11 0 0
Langlaagte Estate	1	6 2 6	6 5 0
New Primrose	1	7 15 0	7 17 6
Robinson	5	10 2 6	10 7 6
Simmer & Jack	1	19 10 0	20 0 0

MEXICO. Week ending Sept. 6

Name of Company.	State.	No. of shares.	Last dividend.	Last assessment.	Prices. Opening.	Closing.
Amistad y Concordia	Hidalgo	9,600	$3.58		$60	$60
Angustias	Guanajuato	2,400	15.00		1,280	1,300
Asturiana y Anexas	Zacatecas	2,500	10.00		380	380
Cerro Colorado	Chihuahua	15,000		$1.00	15	15
Cinco Senores	Guanajuato	2,000	30.00		1,530	1,500
Concepcion y Anexas	S. Luis Potosi	2,700			325	325
El Oro	Guanajuato	500			81	80
do. pref	"	2,000	2.00		80	80
Huautla Sta. Ana	Morelos	4,000	1.50		100	100
Luz de Berda	Michoacan	3,000		0.50	30	30
do. Free stock	"	1,000			30	30
Luz de Maravillas	Hidalgo	1,100			380	380
Purisima de los Com.	Zacatecas	240			70	70
Real del Monte	Hidalgo	2,554	20.00		1,500	1,500
Rosario y Anexas	Durango	4,800			120	120
do. pref	"	2,400			90	90
San Rafael y An	Hidalgo	1,200	32 00		1,880	1,860
do. free stock	"	1,200	20.00		810	830
Sta. Elena Almoloya	"	1,280		0.50	10	10
Sta. Gertr. y Anexas.	"	28 800	1.50		75	74
do. free stock	"	9,600	0.87		16	16
Sta. Maria de la Paz	S. Luis Potosi	2,400			440	440
Tlauzinco	Puebla	2,400			40	40
Zaragoza	Hidalgo	1,100			30	30
Zomelahuacan (gold)	Vera Cruz	5,000			100	100
Zona Min. de Pozos	Guanajuato	2,400		1.50	120	120

NOTE.—In most Mexican mining companies the shares have no fixed par value. The capital is formed of a certain number of shares, the total value not being named. Prices are in Mexican dollars.

Philadelphia, Pa.* Sept. 11.

Name of Co.	Par.	Bid.	Ask.	Last sale.
Cambria Iron	$50	$63¼		100
do. Allots		12	$11¼	422
Hunt & Br. Top	50	3¼		36
do. pref	50	54	53	128
Lehigh C. & N.	50	49½	48½	217
Lehigh Valley	50	42⅜	40¾	4.614
Penn. R. R.	50	57		4,531
Westmorel'd C.	50			

*Phila. Exchange. Total shares sold, 10,048

Shanghai, China.* Aug. 2.

Name of Co.	Par.	Last div.	Price.
Jelebu Mg	$5	$0 25	T. 2·41
Punjom Mg	4		" 4·02
do. pref.	1		" 1 24
Raub A'lianG.	£1	10½d.	" 3·10
Sheridan Con.	T. 100		" 4·00

* Special Report of J. P. Bissett & Co. Prices quoted are in silver taels.

PARIS. Week ending Aug. 30.

Name of Company.	Country.	Product.	Capital Stock.	Par value.	Divs. last year.	Prices. Op'ning.	Closing.
			Francs.	Fr.	Fr	Fr.	Fr.
Acieries de Creusot	France	Steel mfrs.	27,000,000	2,000	100.00	2,000.00	2,000.00
" " Firminy	"	"	3,000,000	500	85.00	1,575.00	1,575.00
" " Fives-Lille	"	"	12,000,000	500	35.00	640.00	645.00
" " la Marine	"	"	30,000,000	500	30.00	784.00	772.50
" " Longwy	"	"		500	35.00	675.00	665.00
" " l'Horme	"	"		500		11.00	11.50
Aguas Tenidas	Spain	Iron pyrites	10,000,000	500	40.00	300.00	290.00
Anzin	France	Coal			200.00	4,100.00	4,115.00
Boleo	Lower Cal.	Copper		500		1,140.00	1,230.00
Bruay	France	Coal	3,000,000	400	600.00	18,050.00	16,980.00
Callao	Venezuela	Gold	32,200,000	125		14.50	14.25
Cape Copper	S. Africa	Copper		50	1.50	67.50	70.00
Champ d'Or	"	Gold		25		97.50	91.25
Courrieres	France	Coal	60,000	300	150.00	4,20 0.00	4,375.00
De Beers Consolidated	S. Africa	Diamonds	98,750,000	125	15.63	695.00	710.62
Dombrowa	Russia	Coal		500		65 .00	645.00
Dourges	France	"		1,000	225.00	6,495.00	6,495.00
Dynamite Centrale		Explosives		500	25.00	625.00	615.00
Dynamite Francaise		"		500	25.00	740.0	725.00
Epinac		Coal		2 500		600.0	600.00
Huanchaca	Bolivia	Silver		125	5.00	155.62	162.50
Jerez-Laiteira	Spain	Copper				6.50	6.50
Kebao	Tonquin	Coal		500		430.00	440.00
Laurium	Greece	Zinc & lead	16,300,000	500	40.00	585.00	582.50
Malfidano	Italy	Zinc	12,500,000	500	52.50	920.00	916.00
Metaux, Cie. Fran. de	France	Metal d'lers.	25,000,000	500	37.50	310.00	322.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	767.50	765.00
Nickel	N. Caledonia	Nickel	12,720,000	500	30.00	170.00	165.00
Penarroya	Spain	Coal, etc.		500	52.50	1,050.00	1,09 .00
Pontgibaud	France	Lead, etc.				292.00	299.00
Rio Tinto	Spain	Copper	81,250,000	250	8.00	45 .50	458.10
Robinson	S. Africa	Gold		125	12.50	266.25	292.50
Saint Elie	Fr. Guiana	"	4,000,000	25		37.50	37.25
Salines de l'Est	France	Salt		500	27.00	283.00	295.00
Soufres Roumaines	Italy	Sulphur				215.00	217.50
Tharsis	Spain	Copper		50	6.25	128.50	130.00
Vicogne-Noeux	France	Coal				700.00	17,080.00	17,080.00
Vielle Montagne	Belgium	Zinc	9,000,000	80	30.00	458.00	461.25

VALPARAISO, CHILE.* Week ending July 30.

Name of Company.	Capital.	Share value N'minal.	Paid up.	Last dividend.	Prices. Bid.	Asked.	Last sale
Arturo	$3,300,000	$100	$100	0½ per cent.	$46	$46½	$46
Caracoles	315,000	100	100	5 "		50	
Descub. de Huantajaya	1,000,000	100	100	2 "	34	36	35
Huanchaca de Bolivia	800,000	100	100	4 "	90	91	90
Oruro	800,000	1,000	1,000		2,420	2,580	2,500
S. Agustin de Huantajaya	1,500,000	100	100	2½ per cent.	50	55	52½
Todos Santos	2,000,000	100	100	0½ "	17½	18	18¼
Nitrate Cos:							
Agua Santa	5,000,000	500	500	6 "	158	159	160
Antofogasta	2,000,000	200	200	10 "	180	185	184
Union	3,000,000	200	100	3 "	70	75	75

* Special Report of Jackson Bros. Values are in Chilean pesos or dollars.

SALT LAKE CITY, UTAH.* Week ending Sept. 7.

Name of Company.†	Par value.	Bid.	Asked.	Actual selling price.	Name of Company.	Par value.	Bid.	Asked.	Actual selling price.
Ajax	$10	$0.20	$0.30	$0.25	Daly	$20	$6.25	$7.00	$6 75
Alliance	1	1.30	1.45	1.40	Daly West	20	6.25	6.75	6.50
Amer. Nat. Gas	10	.05	.15	.12½	Horn Silver	25	2.10	2.50	2.35
Anchor	20	3.10	3.35	3.25	Mammoth	25	1.00	1.10	1.10
Bogan	1	.15	.40	.25	Mercur	25	4.15	4.75	4.20
Bullion Beck & C.	10	7.25	8.75	8.50	Morgan	125	.50	.75	.65
Cane Springs	5	.50	.85		Ontario	100	9.25	11.50	10.50
Centen'l Eureka	50	55.00	62.00	60.00	Silver King	20	14.50	15.25	14.75
Cleveland Con	1		.50		Tetro	1		.20	.10
Comstock	25	.50	.70	.60	Utah	1	.50	1.00	.75
Dalton	5	.02	.05	.03	Utah Lime	10	3.50	4.25	4.10

* Special report of James A. Pollock. † All the companies are located in Utah.

CURRENT PRICES.

These quotations are for wholesale lots in New York unless otherwise specified.

Acid—Acetic, chem. pure 18@.20
Commercial, in bbls. and cbys 01¾@.02
Carbonic, liquefied, ℔ lb 07@.10
Chromic 20
Hydrofluoric 04@.07
Alcohol—95%, ℔ gall $2.30@$2.40
Absolute $3.80
Alum—Lump, ℔ cwt $1.60@$1.80
Ground, ℔ cwt $1.70@$1.90
Lump ℔ ton, Liverpool £4 10s.@£4 17s.
Aluminum Chloride—Pure, ℔ lb. $1.25
Amalgamating solution, ℔ lb 60
Sulphate, ℔ cwt $1.25@$1.75
Ammonia—Sal., lump, ℔ lb 09@.10
Carbonate, ℔ lb., English and German 08¼@.09¼
Muriate, white, in bbls., ℔ lb 07@.08
Aqua Ammonia—(in cbys) 8° ℔ lb. .03@.04
20°, ℔ lb 04@.05
26°, ℔ lb 04¾@.05
Antimony—Oxymur, ℔ lb 04@.06
Regulus, ℔ lb 07@.08
Oxide 18@.25
Argois—Red, powdered, ℔ lb 15
Arsenic—White, powdered ℔ lb. 03@.03¼
Red ℔ lb 05½@.06
Yellow .08@.09
White at Plymouth, ℔ ton £12 2 6
Asbestos—American, Salt Mt. $14.50@$20
Canadian $15@$20
Ashes—Pot, 1st sorts, ℔ lb 04½@.04¾
Pearl 05½@.06
Asphaltum—
Prime Cuban, ℔ lb .04@.05
Hard Cuban, ℔ ton $28.00@$30.00
Trinidad, refined, ℔ ton $30.00@$35.00
Egyptian and Syrian, ℔ lb 05@.07¼
Californian, at mine, ℔ ton $12.00@$26.00
at San Francisco, ℔ ton, $15.00@$29.00
Barium—Carbonate, pure precip., ℔ lb. 10
Carbonate, commercial, ℔ lb 03
Chlorate, crystal, ℔ lb 25@.30
Chloride, commercial, ℔ lb .02@.02½
Iodide ℔ oz 40
Nitrate, ℔ lb 06¼@.07
Sulph., Am. prime white, ℔ ton $15@$18
Sulph., foreign, floated, ℔ ton $16@$18
Sulph., off color, ℔ ton $10@$11.50
Carb., lump, f. o. b. L'pool, ℔ ton £6
Bauxite—℔ ton $7 @ $8
Bichromate of Potash—Scotch. ℔ lb 09@.10
American, ℔ lb 09@.09½
Bichromate of Soda—℔ lb 08@.09
Borax—Refined, ℔ lb., in car lots .06@.06½
Bromine—℔ lb 25@.35
Cadmium Minion—℔ lb $2.00
Cadmium Iodide—℔ lb $5.00
Chalk—℔ ton $1.50@$2.25
Precipitated, ℔ lb .04@.05
China Clay—English, ℔ ton $12@$17.00
Domestic, ℔ ton $9@$11
Chlorine liquefied, ℔ .25
Chrome Yellow—℔ lb .10@.25
Chrome Iron Ore—℔ ton, San Francisco $10.00
Chromalum—Commercial, ℔ lb. .03@.05
Cobalt—Oxide, ℔ lb $1.40@$1.55
Copper—Sulph. English Wks. ton £20@£21
Vitriol (blue), ℔ lb 03¾@.04¼
Nitrate, ℔ lb .25
Copperas—Common, ℔ 100 lbs .50@.65
Best, ℔ 100 lbs $1.25@$1.50
Liverpool, ℔ ton, in c'sks. £1 11s.@£1 15s.
Corundum—Powdered, ℔ lb .04½@.09
Flour, ℔ lb .03
Cryolite—Pow., ℔ lb., bbl. lots .06½@.07½
Emery—Grain, ℔ lb. (℔ kg.) .04½@.05
Flour, ℔ lb .02½@.04
Epsom Salt—℔ lb 01@.01½
Feldspar—Ground, ℔ ton $6.00@$10.00
Fluorspar—Powdrd, No. 1, ℔ ton $15@$20
Lump, at mine $6@$8
French Chalk—℔ ton $2.25@$2.30
Fuller's Earth—Lump, ℔ ton $10@$20
Glauber's Salt—in bbls., ℔ cwt .50@.75
Glass—Ground, ℔ lb .09@.10
Gold—Chloride, pure, crystals, ℔ oz. $12.00
pure, 15 gr., c. v., ℔ doz. $5.40
liquid, 15 gr., g. s. v., ℔ doz $5.50
Chloride and sodium, ℔ oz $6.00
15 gr., c. v., ℔ doz. $2.75
Oxide, ℔ oz $27.25
Gypsum—Calcined, ℔ bbl $1.75
Iodine—Resublimed, ℔ lb. $3.50@$4.00
Iridium—Oxide ℔ lb $90
Iron—Nitrate, 40°, ℔ lb .01@.01½
47°, ℔ lb .02@.02½
Kaolin—*See China Clay.*
Kieserite—℔ ton $9@$10
Lead—Red, American, ℔ lb 04½@.05
White, American, in oil, ℔ lb. .05½@.06¼
White, English, ℔ lb., in oil .06½@.07½
Acetate, or sugar of, white .06@.08
Nitrate .05¾@.06½
Lime Acetate—Am. Brown .90@.95
" Gray $1.50@$1.60
Litharge—Powdered, ℔ lb. .04½@.05½
English flake, ℔ lb .07½@.09½
Magnesite—Crude, ℔ ton of 1,015 kilos $7@$10
Calcined, ℔ ton of 2,240 lbs $12@$14
Brick, ℔ ton of 2,240 lbs. $47.50
Manganese—Ore, per unit .23@.28
Oxide, ground, ℔ lb .02½@.06¼
Mercuric Chloride—(*Corrosive Sublim.*) ℔ lb .55@.60
Marble Dust—℔ bbl .85c.@$1
Metallic Paint—Brown ℔ ton $20@$25
Red $20@$25
Mica—In sheets according to size, 1st quality, ℔ lb $3.25@$6
Mineral Wool—Ordinary slag .01½
Ordinary rock .02½
Nitre Cake—℔ ton $2.50@$3
Ochre—Rochelle, ℔ lb .01@.01½
Washed Nat Oxf'rd, Lump, ℔ lb. .01¼@.01½
Washed Nat Oxf'rd, Pow., ℔ lb. .03¼@.07¼
Golden, ℔ lb .03@.05
Domestic, ℔ ton $8@$10
Oils, Mineral—
Cylinder, light filtered, ℔ gal .12@.20
Dark filtered, ℔ gal .10@.15
Extra cold test, ℔ gal .20@.24
Dark steam refined, ℔ gal .07½@.12
Phosphorus—℔ lb .50@.55
Precip., red, ℔ lb .75@.80
white, ℔ lb .80@.85
Platinic Chloride—Dry, ℔ oz $6
Plumbago—Ceylon, ℔ lb .04@.05
American or German, ℔ lb .02@.02½
Potassium—Cyanide, ℔ lb., C. P. 65% 52
65%, ℔ lb .40
mining .20@.22
Bromide, domestic, ℔ lb .28@.32
Chlorate, English, ℔ lb .10@.12
Chlorate, powdered, English, ℔ lb. .12@.14
Carbonate, ℔ lb., by casks, 98-99% .06@.07
Caustic, ℔ lb., pure stick .04½@.06
Iodide, ℔ lb $2.58@$2.80
Nitrate, refined, ℔ lb .05@.06
Bichromate, ℔ lb .09@.11
Yellow Prussiate, ℔ lb., 24c. contr., 25c. single casks. .22@.25
Red Prussiate, ℔ lb .39@.45
Pumice Stone—Select lumps, lb. .03¼@.15
Original cks., ℔ lb .01½@.02
Powdered, pure, ℔ lb .01¼@.02
Pyrites—Non-cupreous, p. unit .10@.11
Quartz—Ground, ℔ ton $6.00@$10.00
Rotten Stone, Powdered, ℔ lb. .03¼@.03¼
Lump, ℔ lb .06@.07
Original cks, ℔ lb .04½@.05½
Rubbing stone, ℔ lb .03½@.04
Salt—Liverpool, ground, ℔ sack .70
Domestic, fine, ℔ ton $7@$7.50
Common, fine, ℔ ton $4.50@$5
Turk's Island, ℔ bush .26@.28
Salt Cake—℔ ton $9@$15
Saltpeter—Crude, ℔ lb .04@.05
Soapstone—Ground, ℔ ton $6@$8
Block and slab according to size.
Sodium—Prussiate, ℔ lb .22@.24
Phosphate, ℔ lb .04@.05
Stannate, ℔ lb .06@.12
Tungstate, ℔ lb .30@.35
Hyposulphite, ℔ cwt., in casks $1.70@$1.80
Strontium—Nitrate, ℔ lb .08@.09
Sulphur—Roll, ℔ lb .01½@.02
Flour, ℔ lb .01¼@.01¾
Sylvinit, 27@35%, per unit .36½@.37½
Talc—Ground French, ℔ lb .01½@.01½
American No. 1, ℔ lb .01@.01½
American No. 2 .006@.008
Terra Alba—French, ℔ cwt .50@.80
English .70@.80
Domestic, ℔ ton $8.50@$10
Tin—Crystals, in kegs or bbls .14@.15
feathered or flossed .20
Muriate, single .07@.12
Double or strong, 54° B .10@.11
Oxymur, or nitro .15
Vermilion—Imp. English, ℔ lb. .64@.66
Am. quicksilver, bulk .59@.62
Am. quicksilver, bags .60@.64
Chinese .85@$1.00
Trieste .90@.95
American .11½@.12
Zinc White—Am., Dry, ℔ lb. .03¼@.04½
Antwerp, Red Seal, ℔ lb .05½@.05¾
Paris, Red Seal, ℔ lb .06¾@.07
Muriate solution .06
Sulphate crystals in bbls., ℔ lb. .03@.03

THE RARER METALS.

The prices given below are the prices in New York, based on those of the German makers, and are per gram except where otherwise stated:

Arsenic (metallic), per kilo $0.25
Barium (ex amalgam) 4.00
Boron (cryst.) 4.25
Cadmium (metallic), " 2.75
Calcium (per electrol.) 10.00
Cerium (pulv.) 4.00
Chromium (fus.) .50
" (cryst.) .60
Cobalt (metallic) .35
Columbium 6.00
Didymium (pulv.) 10.00
Erbium-Yttrium (oxydat.) 10.00
Gallium (cryst.) 21.00
Germanium (fus.) 75.00
Glucinum (pulv.) 12.00
" (cryst) 21.00
Indium 9.00
Iridium (fusum) 2.00
" (grains) .50
Lanthanum (pulv.) 12.00
Lithium (in glob.) 8.00
Manganese fusum) .50
Molybdenum (pulv.) .25
Niobium (pulv.) 6.00
Osmium 2.00
Palladium (wire) 1.50
Potassium (metal), per kilo 27.50
Rhodium 3.25
Ruthenium 5.00
Rubidium 10.00
Selenium (cryst.) .10
Silicon (metal) .00
Strontium (per electrol.) 14.50
Tantalum 9.50
Tellurium (fusum) .50
Thallium .15
Titanium 1.00
Uranium 2.00
Vanadium 7.00
Wolframium (powder), ℔ 10 gr. .04
Zirconium .1

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Par val	Assessments. Total Levied	Assessments. Date and amount of last.			Dividends. Total paid.	Dividends. Date & amount of last.		
1	Adams, s. L	Colo.	$1,500,000	150,000	$10	*	.....	.....	.....	$687,500	Jan..	1892	.05
2	Alaska-Treadwell, g.	Al'ska	5,000,000	200,000	25	*	.....	.....	.....	2,224,000	Apr..	1895	.37½
3	Alice, s	Mont.	10,000,000	400,000	25	*	.....	.....	.....	975,000	Nov..	1891	.06¼
4	Amador, c	Cal.	1,250,000	250,0 0	5	*	.....	.....	.....	31,250	Aug..	1890	.12½
5	American, g	Colo.	3,000,000	300,000	10	*	.....	.....	.....	225,000	Mar..	1892	.05
6	American Belle, s.g.c	Colo.	2,000,000	400,000	5	*	.....	.....	.....	50,000	Apr..	1891	.12½
7	Americ'n&Nettie, g.s	Colo.	.....	300,000	.....	*	.....	.....	.....	175,000	Mar..	1892	.05
8	Atlantic, c	Mich.	1,000,000	40,000	25	280,000	April	1875	$1.00	700,000	Feb..	1891	1.00
9	Argyle, g	Colo..	1,000,000	1,000,000	1	*	.....	.....	.....	20,000	Mar.	1892	.01
10	Aspen Mg. & S., s. L.	Colo..	2,000,000	200,000	10	*	.....	.....	.....	900,000	July.	1894	.10
11	Aurora, c	Mich.	2,500,000	100,000	25	*	.....	.....	.....	650,000	Feb..	1893	2.00
12	Bad er, s	Ont..	250,000	50,000	5	*	.....	.....	.....	97,500	Mar.	1890	.25
13	Baid Butte	Mont	250,000	250,000	1	*	.....	.....	.....	382,000	Jan.	1895	.05
14	Bangkok-C.Bell,c.s.l.	Colo..	600,000	600,000	1	*	.....	.....	.....	92,510	Aug..	1895	.00½
15	Bates Hunter, s. g	Colo.	1,000,000	1,000,000	1	*	.....	.....	.....	67,500	Dec..	1891	.00¼
16	Belden, F. E., m	N. H.	500,000	100,000	5	*	.....	.....	.....	155,113	Aug..	1895	.01
17	Belle Isle, s	Nev.	10,000,000	100,000	100	230,271	Sept	1893	.10	300,000	Dec..	1879	.25
18	Belcher, s. g	Nev.	10,400,000	104,000	100	3,262,900	Nov.	1893	.20	15,397,200	Apr..	1876	1.00
19	Bellevue, Idaho, s. L.	Idaho	1,250,000	125,000	10	120,000	Dec..	1889	.25	200,000	Jan..	1890	.10
20	Best Friend	Colo.	1,000,000	1,000,000	.....	*	.....	.....	.....	90,000	Feb..	1892	.01
21	Bi-Metallic, s. g	Mont.	10,000,000	200,000	25	.....	.....	.....	.....	1,630,000	June	1893	.10
22	Bodie Con., g. l	Cal.	10,000,000	100,000	100	714,990	July	1893	.15	1,677,572	Dec..	1894	.25
23	Boston & Mont., c. s	Mont.	2,500,000	250,000	10	*	.....	.....	.....	320,000	June	1895	.15
24	Boston & Mont., c. s.	Mont.	3,750,000	150,000	25	*	.....	.....	.....	2,475,000	May..	1893	2 00
25	Brotherton, l	Mich	400,000	80,000	5	*	.....	.....	.....	120,000	Mar..	1895	.50
26	Bulwer, g	Cal..	6,000,000	100,000	10	155,000	July	1893	.15	190,000	Oct..	1892	.05¼
27	Bunker Hill & S.s.L.	Idaho	3,000,000	300,000	10	*	.....	.....	.....	150,000	Oct..	1888	.08
28	Caledonia, g	Dak..	10 300,000	100,000	100	505,000	May.	1885	.15	192,000	Oct..	1890	.06¼
29	Calumet & Hecla c.	Mich.	4,500,000	100,000	25	1,300,000	.....	.....	.....	43,350,000	Aug..	1895	5.00
30	Center'l-Eureka, s.l.	Utah.	1,500,000	30,000	50	30,000	Mar.	1888	1.00	1,200,000	Aug..	1895	.50
31	Central, c	Mich.	500,000	20,000	25	100,000	Oct..	1861	.65	1,970,700	Feb..	1891	1.00
32	Champion, g	Cali	340,000	34,000	10	150,000	.....	.....	.....	216,000	Aug..	1895	.10
33	Chrysolite, s. L.	Colo	10,000,000	200,000	25	*	.....	.....	.....	1,650,000	Dec..	1884	.25
34	Cœur D'Alene, s. L.	Idaho	5,000,000	500,000	10	.....	.....	.....	.....	340,000	June	1893	.06
35	Colorado Central,s.l.	Colo..	2,700,000	275,000	10	*	.....	.....	.....	502,661	Apr..	1893	.05
36	Commonwealth, s	Nev..	10,000,000	100,000	100	200,000	Nov.	1893	.10	30,000	Nov..	1890	.20
37	Confidence, s. L.	Nev..	2,496,000	24,960	100	1,589,350	Aug..	1892	.50	277,680	Apr..	1889	1.00
38	‡Cons.Cal. & Va., s.g	Nev...	21,600,000	216,000	100	216,000	Dec..	1892	.50	3,952,720	Mar	1895	.25
39	Contention, s	Ariz.	12,500,000	250,000	50	.....	.....	.....	.....	4,687,500	Aug.	1892	.20
40	Cook's Peak, s	N. M..	2,000,000	200,000	10	*	.....	.....	.....	119,532	Nov.	1892	.05
41	Cop. Queen Con., c.	Ariz.	2,000,00	200,000	10	.....	.....	.....	.....	1,910,000	June.	1895	.25
42	Coptis	Nev.	10,000,000	100,000	100	*	.....	.....	.....	68,000	Feb..	1895	.01
43	Cortes,	Nev.	1,500,000	300,000	5	*	.....	.....	.....	735,000	Feb.	1893	.15
44	Crescent, s. r. g	Utah.	15,000,000	600,000	25	60,000	Oct	992	.10	228,000	Oct..	1888	.03
45	Crown Point, g. s	Nev...	10,000,000	100,000	100	2,750,000	June	1893	.25	11,898,000	Jan..	1875	.00
46	Daly, s. L	Utah.	3,000,000	150,000	20	*	.....	.....	.....	2,850,000	May..	1893	.25
47	‡Deadwood-Terra, g.	Idaho	5,000,000	200,000	25	*	.....	.....	.....	1,140,000	Sept..	1892	.05
48	DeLamar, g s	Idaho	2,000,000	400,000	5	*	.....	.....	.....	1,716,000	Aug..	1895	.36
49	Derbec B. Grav., g	Cal..	10,000,000	100,000	100	100,000	Sept.	1892	.10	260,000	Mar	1891	.05
50	Dexter, g. s	Nev..	1,000,000	100,000	10	*	.....	.....	.....	245,000	July	1893	.25
51	Elkhorn, s	Mont.	1,000,000	200,000	5	*	.....	.....	.....	1,324,689	May	1895	12½
52	Elkton	Colo..	500,000	500,000	1	*	.....	.....	.....	60,000	Dec.	1894	.01
53	Enterprise, s	Colo..	2,500,000	500,000	5	*	.....	.....	.....	850,000	June.	1893	.25
54	EurekaCon., s. l. g.	Nev ..	1,000,000	50,000	21	550,000	June	1889	.50	5,112,500	Jan .	1892	.25
55	Eureka Hill, g. s. L.	Utah.	1,000,000	10,000	10	*	.....	.....	.....	1,500,000	Jan..	1891	.01
56	Evening Star, s. L.	Colo.	500,000	50,000	10	*	.....	.....	.....	1,437,500	Dec.	1889	.25
57	Father de Smet, g.	Dak..	10,000,000	100,000	100	200,000	Nov..	1878	1.00	1,125,000	Dec.	1885	.20
58	Franklin, c	Mich.	1,000,000	40,000	25	320,000	June	1867	2.50	1,240,000	Jan..	1894	2.00
59	Glengarry	Mich.	1,000,000	100,000	10	*	.....	.....	.....	10,000	June.	1891	10
60	Gold & Globe, g	Colo.	750,000	750,000	1	*	.....	.....	.....	9,375	Mar..	1895	.00¼
61	Gould & Curry, s. g.	Nev..	10,800,000	108,000	100	4,688,400	Oct .	1893	.10	3,826,800	Oct..	1870	10.00
62	Grand Prize, s	Nev..	10,000,000	100,000	100	785,000	Jan..	1890	.80	1,495,000	Mar.	1894	.25
63	Granite Mountain, s.	Mont.	10,000,000	400,000	25	*	.....	.....	.....	12,120,000	July.	1892	.20
64	Great Western, L. g.	Cal..	5,000,000	50,000	100	50,526	.....	1889	.15	988,866	Nov	1893	.25
65	Hale & Norcross, g. s.	Nev..	11,200,000	112,000	100	5,646,900	June	1893	.50	1,822,000	Aug	1888	.50
66	Hecla Con., s. g. L. c.	Mont.	1,500,000	30,000	50	*	.....	.....	.....	2,115,000	Aug..	1895	.50
67	Hel's Mg.& Red,s.l.g.	Mont.	3,315,000	663,000	5	*	.....	.....	.....	197,970	July.	1886	.06
68	Helena & Frisco, s.L.	Idaho	2,500,000	500,000	5	*	.....	.....	.....	280,000	Feb..	892	.02
69	Helena & Victor	Mont.	1,000,000	200,000	5	*	.....	.....	.....	80,000	May	1892	.05
70	¶Holmes, s	Nev...	12,500,000	125,000	100	345,000	Mar.	1890	.25	75,000	Apr..	1892	.25
71	Homestake, g	Dak..	12,500,000	125,000	100	200,000	July.	1878	1.00	5,556,250	July..	1895	.25
72	Hope, s	Mont.	1,000,000	100,000	10	*	.....	.....	.....	552,250	Jan	1895	.10
73	Horn-Silver, s. L.	Utah.	10,000,000	400,000	25	*	.....	.....	.....	5,147,500	June.	1895	.12½
74	Idaho, c	Cal..	810,000	3,100	100	*	.....	.....	.....	5,489,000	Sept.	1893	2.50
75	Illinois, s	N. M..	100,000	100,000	1	*	.....	.....	.....	45,000	Apr..	1889	.20
76	Iron Mountain, s	Mont.	5,000,000	500,000	10	*	.....	.....	.....	385,000	Aug..	1895	.02
77	Iron-Silver, s. L.	Nev..	5,000,000	50,000	100	247,500	Mar..	1893	.20	2,500,000	Apr..	1889	.20
78	Jackson, g. s	Mich..	2,000,000	40,000	25	190,000	Oct..	1887	1.00	83,000	Feb.	1895	.14
79	Kearsarge, c	Cal..	10,000,000	100,000	100	*	.....	.....	.....	80,000	Jan..	1890	2.00
80	Kennedy	Cal..	4,000,000	400,000	10	*	.....	.....	.....	2,734,000	Aug..	1895	.48
81	Leadville Con., s. L.	Colo..	4,000,000	400,000	10	*	.....	.....	.....	416,000	Sept.	1893	.05
82	Lexington, g. s.	Mont.	4,000,000	40,000	100	*	.....	.....	.....	632,200	July.	1893	.50
83	Little Chief, s. L.	Colo.	10,000,000	200,000	50	*	.....	.....	.....	820,000	Dec..	1890	.05
84	Maid of Erin	Colo.	3,000,000	600,000	5	*	.....	.....	.....	708,900	Apr..	1893	.25
85	Mammoth, s. L. c	Utah	10,000,000	400,000	250	110,000	.....	1882	.25	1,040,000	Dec..	1891	.10
86	Maxfield	Utah.	3,000,000	300,000	10	*	.....	.....	.....	117,000	Apr..	1892	.03
87	Mayflower, D. gravel	Cal..	1,200,000	60,000	20	*	.....	.....	.....	242,000	Aug..	1895	.10
88	Minas Prietas, g. s.	Mex..	1,000,000	100,000	10	*	.....	.....	.....	350,000	Dec..	1890	.50
89	Minnesota, c	Mich.	1,000,000	40,000	100	420,000	April	1886	1.00	1,820,000	Mar..	1876	.....
90	Minnesota Iron, l	Minn.	16,500,000	165,000	100	*	.....	.....	.....	2,745,000	Apr..	1893	1 50
91	Mollie Gibson, s	Colo.	5 000,000	1,000,000	5	19 500	Jan..	1891	.01	4,080,000	Jan..	1895	.05
92	Monitor, g	S.Dak	2,500,000	250,000	10	*	.....	.....	.....	45,000	Oct	1890	.03
93	Mono, g	Cal..	5,000,000	50,000	100	797,500	Feb..	1893	.25	12,500	Mar	1886	.25
94	Montana, L., g. s	Mont.	3,300,000	660,000	5	*	.....	.....	.....	2,701,575	Jan.	1895	12½
95	Moose	Mont.	600,000	600,000	1	*	.....	.....	.....	72,000	Nov..	1894	.12
96	Morning Star, s. L.	Colo..	1,000,000	100,000	10	*	.....	.....	.....	1,025,000	Dec..	1891	.1
97	Morning Star Drift,g	Cal..	240,000	2,400	100	*	.....	.....	.....	427,100	Aug.	1895	7.0
98	Mouiton, s. g	Mont.	2,000,000	400,000	5	*	.....	.....	.....	460,000	July.	1894	.05
99	Mt. Diablo, s	Nev..	5,00 0,000	50,000	100	187,500	June	1880	2.00	225,000	Nov	1893	.30
00	Mt. Rosa, g	Colo..	1,00 0,000	1,000,000	1	*	.....	.....	.....	10,000	Jan..	1895	.10
01	Napa, q	Cal..	700,000	100,000	7	*	.....	.....	.....	720,000	June.	1895	.30
02	Navajo, g. s	Nev..	10,000,000	100,000	100	538,714	Sept.	1893	.10	226,111	Apr.	1889	.10
03	New Guston, s	Colo..	550,000	110,000	5	*	.....	.....	.....	1,877,500	Apr.	1892	.75
04	North Banner Con	Cal..	1,000,000	100,000	10	*	.....	.....	.....	20,000	July..	1891	.05
05	North Commonw'th	Nev..	10,000,000	100,000	100	90,000	Jan..	1893	.10	25,000	June	1891	.25
06	N. Hoover Hill, g. s.	N. C	300,000	120,000	2½	*	.....	.....	.....	30,000	Dec.	1895	.06½
07	North Belle Isle, s	Nev..	10,000,000	100,000	100	513,075	April	1893	.10	230,000	May	1888	.50
08	North Star, g	Cal..	1,000,000	100,000	10	20,000	.....	1885	.02	450 000	June	1893	.50
09	Nugget, g	.....	1,000,000	1,000,000	1	*	.....	.....	.....	10,000	Jan	1895	.00½
10	Omaha Cons.,g	Cal..	2,400,000	24,000	100	.....	.....	.....	.....	97,200	July..	1894	.15
11	Ontario, s. L	Utah	15,000,000	150,000	100	.....	.....	.....	.....	13,175,000	Oct..	1892	.50
12	Ophir, g. s	Nev..	10,000,000	100,000	100	4,391,040	July	1893	.25	1,595,800	Jan	1895	1.00
13	Osceola, c	Mich..	1,250,000	50,000	25	480,000	April	1876	1.60	1,947,500	June	1895	1.00
14	Pacific Coast, B	Cal..	2,000,000	20,000	100	*	.....	.....	.....	422,500	July.	1893	1.00
15	Parrot, c	Mont.	2,330,000	23,000	10	.....	.....	.....	.....	1,169,000	June	1898	.10
16	Petro	Utah.	10,000,000	10,025	100	*	.....	.....	.....	17,500	July..	1891	.75
17	Pharmacist, g	Cal..	1,200,000	1,200,000	1	*	.....	.....	.....	80,000	June.	1893	.01
18	Plumas Eureka, g	Colo.	1 406,250	140,600	50	*	.....	.....	.....	2,696,295	Oct..	1893	.15
19	Plymouth Con., g	Cal..	5,000,000	100,000	50	*	.....	.....	.....	2,280,000	Feb..	1888	.40
20	Poorman; G. S	Idaho	375,000	300,000	125	*	.....	.....	.....	68,260	Sept.	1892	.15
21	Portland, g	Colo.	3,000,000	3,000,000	1	*	.....	.....	.....	161,000	May..	1895	.01
22	Quicksilver, pref., q.	Cal..	4,300,000	43,000	100	.....	.....	.....	.....	1,823,911	June	1891	1.25
23	" com., Q	Cal..	5,700,000	57,000	100	.....	.....	.....	.....	643,867	July.	1889	.40
24	Quincy, c	Mich..	1,250,000	50,000	25	300,000	Dec..	1862	.....	7,691,000	Aug.	1892	4.00
25	Red Cloud	Idaho	1,000,000	200,000	5	*	.....	.....	.....	158,000	Dec..	1892	.10
26	Retriever, L	S.Dak	1,250,000	250,000	5	*	.....	.....	.....	20,000	Aug..	1891	.03
27	Rialto, g	Colo..	300,000	300,000	1	*	.....	.....	.....	50,250	Apr..	1892	.01½
28	Richmond, s. L	Nev..	1,350,000	54,000	25	*	.....	.....	.....	4,386,780	Sept.	1893	.25
29	Rico-Aspen	Colo..	5,000,000	1,000,000	5	*	.....	.....	.....	325,000	Nov..	1894	.02½
30	Ridge, c	Mich..	1,250,000	50,000	25	219,939	Mar.	1886	50	99,788	Feb..	1891	.50
31	Robinson Con., s. L.	Colo..	10,000,000	200,000	50	*	.....	.....	.....	985,000	Mar	1886	.05
32	Savage, s	Nev..	11,200,000	112,000	100	6,966,000	June	1893	.25	4,460,000	June	1869	3.00
33	Sierra Butte, g	Cal..	2,225,000	122,500	10	*	.....	.....	.....	1,559,933	Oct..	1893	.12½
34	Sierra Nevada, s. g.	Nev..	10,000,000	100,000	100	6,521,910	Aug	1893	.20	702,000	Jan..	1871	1.00
35	Silver Cord, s. L. g	Colo..	5,000,000	200,000	10	*	.....	.....	.....	270 000	Apr..	1889	.10
36	Silver King, s	Utah.	10,000,000	100,000	100	97,479	Aug..	1892	.25	1,043,010	Aug.	1895	.25
37	Silver Mg.of L.V.,s.L.	N. M..	500,000	500,000	1	*	.....	.....	.....	80,000	Dec..	1891	4.05
38	Small Hopes Con., s.	Colo..	5,000,000	250,000	20	*	.....	.....	.....	3,225,000	Oct..	1895	.10
39	Standard, g. s	Cal..	10 000,000	100,000	100	100,000	June	1890	.50	3,781,159	June.	1895	.10
40	Swansea, g. s	Colo..	600,000	60,000	10	*	.....	.....	.....	39,000	Sept.	1892	.10
41	Tamarack, c	Mich.	1,250,000	50,000	25	520,000	April	1885	3.00	4,270,000	June.	1894	4.00
42	Trinity Riv'r Hydr.,g	Colo..	500,000	500,000	1	*	.....	.....	.....	37,500	Apr..	1894	.00½
43	Union	Colo..	1,250,000	1,250,000	1	*	.....	.....	.....	27,740	May..	1893	.01
44	United Verde, c	Aris.	3,000,000	300,000	10	*	.....	.....	.....	562,500	Dec	1893	.25
45	Victor, g	Colo..	1,000,000	200,000	5	*	.....	.....	.....	385,000	Aug..	1895	.10
46	Victor L. & M. Co., g.	Colo..	600,000	600,000	1	6,000	.....	.....	.....	6,000	June.	1895	.05
47	Ward Con., s	Colo..	2,000,000	200,000	1	*	.....	.....	.....	20,000	Dec..	1892	.05
48	W. Y. O. D	Cal..	60,000	30,000	2	22,500	May..	1891	.10	106,000	Aug..	1895	.10
49	Yankee Girl, †	Colo.	1,800,000	360,000	5	.....	.....	.....	.....	520,000	July.	1891	.25
50	Yellow Jacket, g.	Nev.	12,000,000	120,000	100	.....	July.	1893	.25	2,184,000	Aug..	1871	1.50

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Par	Assessments. Total levied.	Assessments. Date and last.		
1	Ajax, g. s. L	Utah.	$3,000,000	300,000	$10	$15,000	Mar.	1895	$21
2	Alliance, s. g	Utah.	100,000	100,000	1	120,000	Feb..	1891	.10
3	Alloues, C	Mich.	2,000,000	80,000	25	1,424,937	Oct..	1891	.80
4	Alpha Con., g. s	Nev..	3,000,000	30,000	100	309,000	Sept.	1892	.10
5	Alta, s	Nev..	10,080,000	100,800	100	3,369,880	Jan.	1892	.02
6	American Flag, s	Colo..	1,250,000	125,000	1	300,000	June	1887	.....
7	Anchor, s. L. g	Utah.	3,000,000	150,000	5	560,000	July.	1893	.15
8	Barcelona, g	Nev..	5,000,000	200,000	5	*	.....	.....	.....
9	Belmont, g	Cal..	500,000	500,000	100	*	.....	.....	.....
10	Belmont, s	Nev..	5,000,000	50,000	100	735,000	April	1886	.10
11	Best & Belcher, s. g.	Nev..	10,080,000	100,800	10	2,405,275	Aug..	1892	.25
12	Black Oak, g	Cal..	3,000,000	300,000	100	*	.....	.....	.....
13	Brownlow, g	Colo..	250,000	250,000	5	.....	.....	.....	.....
14	Brunswick, g	Cal..	2,000,000	400,000	2	.....	.....	.....	.....
15	Bullion, s. G	Nev..	10,000,000	100,000	100	4,890,000	Aug.	1892	.25
16	Butte & Boston, c. s.	Mont.	5,000,000	200,000	10	.....	.....	.....	.....
17	Butte Queen, g	Cal..	1,000,000	100,000	1	5,000	Jan..	1892	.....
18	Calaveras, g	Cal..	500,000	500,000	5	.....	.....	.....	.....
19	Calaveras Con., g	Cal..	800,000	160,000	10	.....	.....	.....	.....
20	California, g	Cal..	1,000,000	100,000	5	9,000	Mar..	1892	.....
21	California Con. L. G.	Cal..	2,250,000	450,000	10	.....	.....	.....	.....
22	Challenge Con., g. s.	Nev..	5,000,000	50,000	10	.....	.....	.....	.....
23	Chollar, s. G	Nev	11,200,000	112,000	.....	2 212 000	May..	1895	.5
24	Colchis, s. G	N. M..	500,000	150,000	5	*	.....	.....	.....
25	Colorado, s	Colo..	1,625,000	325,000	1	.....	.....	.....	.....
26	Comstock, s	Utah.	1,250,000	250,000	100	.....	.....	.....	.....
27	Comstock Tun	Nev..	10,000,000	100,000	100	35,000	Mar.	1887	.10
28	Con. Imperial, G. s	Nev..	5,000,000	50,000	50	2,062,500	Jan..	1892	.25
29	Con. New York, s. G.	Nev..	5,000,000	100,000	100	110,000	Mar..	1892	.10
30	Con. Pacific, G	Cal..	6,000,000	60,000	10	198,000	June	1890	.10
31	Crescent, s. L	Colo..	3,000,000	300,000	100	*	.....	.....	.....
32	Crocker, s	Aris..	10,000,000	100,000	1	165,000	Aug.	1892	.05
33	Crowell, g	N. C..	500,000	500,000	1	.....	.....	.....	.....
34	Dahlonega, G	Ga	250,000	250,000	10	.....	.....	.....	.....
35	Decatur, s	Colo..	1,530,000	300,000	5	.....	.....	.....	.....
36	Denver City s	Colo..	5,000,000	500,000	11	*	.....	.....	.....
37	Denver Gold, g	Colo..	300,000	60,000	5	.....	.....	.....	.....
38	Dickens-Custer, s	Idaho	4,100,000	420,000	5	.....	.....	.....	.....
39	Durango, g	Colo..	500,000	500,000	1	*	.....	.....	.....
40	El Dorado, g	Cal..	1,000,000	250,000	4	*	.....	.....	.....
41	Emma, g	Utah.	625,000	500,000	125	.....	.....	.....	.....
42	Emmons, s. L	Colo..	2,000,000	2 000,000	1	.....	.....	.....	.....
43	Empire, s	Utah.	10,000,000	100,000	100	.....	.....	.....	.....
44	Eureka Tunnel, s. L.	Nev..	10,000,000	100,000	100	*	.....	.....	.....
45	Exchequer, s. G	Nev..	10,000,000	100,000	100	940,000	Jan..	1892	.25
46	Found'r Treasure, G. s.	Nev..	10,000,000	100,000	100	130,500	Jan..	1892	.50
47	Gogebic I. Syn., L	Wis.	5,600,000	200,000	28	.....	.....	.....	.....
48	Gold Cup, s	Colo..	500,000	500,000	1	*	.....	.....	.....
49	Golden Era, s	Mont.	1,000,000	200,000	10	*	.....	.....	.....
50	Gold Flat, g	Cal	1,000,000	100,000	10	5,000	Mar.,	1892	.05
51	Gold Rock, g	Cal..	1,000,000	500,000	2	.....	.....	.....	.....
52	Golden FeatherCh.,g	Cal..	900,000	180,000	5	.....	.....	.....	.....
53	Goodyear G. s. L	Mont.	1,000,000	200,000	5	15,000	Feb..	1892	.01
54	Grand Duke, s	Colo.	900,000	90,000	10	.....	.....	.....	.....
55	Gregory Con., g	Mont.	3,000,000	300,000	10	.....	.....	.....	.....
56	Harlem M. & M. Co., g.	Cal..	1,000,000	200,000	5	.....	.....	.....	.....
57	Hartery Con., g	Cal..	1,000,000	100,000	10	22,000	Oct..	1890	.05
58	Hattie Tunnel, g. s. L	S.Dak	1,250,000	250,000	5	6 750	Sept.	1891	.00¼
59	Head Cent. & Tr., s. G	Aris.	10,000,000	100,000	100	16,981	Mar..	1892	.08
60	Hector, g	Cal..	1,500,000	300,000	5	45,000	Jan..	1889	.15
61	Himalaya, g. s. L	Utah.	1,800,000	80,000	10	12,900	Oct..	1892	.00¼
62	Holywood	Cal..	200,000	100,000	3	.....	.....	.....	.....
63	Huron, c	Mich..	1,000,000	40,000	25	280,000	May.	1887	3.00
64	Idaho, g. s	Idaho	1,250,000	250,000	5	*	.....	.....	.....
65	Ingalls, g	Colo.	100,000	20,000	5	.....	.....	.....	.....
66	Ironton, L	Wis.	1,000,000	40,000	25	.....	.....	.....	.....
67	Iroquois, c	Mich..	1,250,000	50,000	25	.....	.....	.....	.....
68	Kentuck Con	Nev..	10,500,000	105,000	00	57,750	July	1892	.10
69	Julia Con., g. s	Nev...	11,000,000	110,000	100	1,463,000	Jan..	1889	.10
70	Justice, g. s	Colo.	500,000	500,000	1	*	.....	.....	.....
71	Lacrosse, c	Colo..	1,000,000	100,000	10	.....	.....	.....	.....
72	Little Josephine, s	Colo..	250,000	50,000	5	*	.....	.....	.....
73	Little Pittsburg, G. s.	Utah.	4,000,000	400,000	10	4,000	Mar..	1892	.....
74	Lone Star Cons., g.	Cal..	500,000	500,000	1	10,000	April	1892	.00½
75	Madeleine, g. s. L	Colo..	750,000	50,000	1	4,500	Feb.	1892	.00¼
76	Mammoth Gold, g	Aris..	2,500,000	500,000	5	*	.....	.....	.....
77	Mayflower Gravel,G.